ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC

POPULATION AND DEVELOPMENT
ASIAN POPULATION STUDIES SERIES NO. 136

POPULATION CHANGE, DEVELOPMENT AND WOMEN'S ROLE AND STATUS IN ASIA

PROCEEDINGS OF THE REGIONAL SEMINAR ON POPULATION CHANGE, DEVELOPMENT AND WOMEN'S ROLE AND STATUS

Bangkok, Thailand
22-24 May 1995

UNITED NATIONS

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ST/ESCAP/1544

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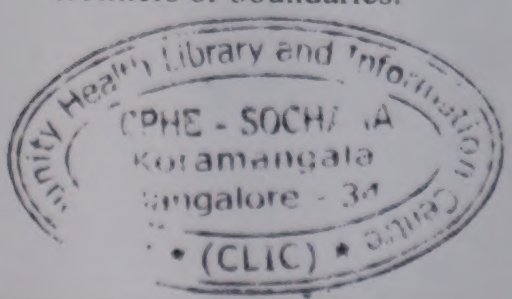

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PREFACE

The present volume contains the proceedings of the Regional Seminar on Population Change, Development and Women's Role and Status, convened by the Economic and Social Commission for Asia and the Pacific (ESCAP) from 22 to 24 May 1995 in Bangkok. The Seminar was an important part of the project on population change, women's role and status and development executed by the Population Division of ESCAP, with financial support from the United Nations Population Fund (UNFPA). The long-range objective of the Seminar was to enhance the extent of effective integration of population and development planning in the member and associate member countries of the ESCAP region through the provision and exchange of information and knowledge, based on research findings as well as practitioners' experience. The immediate objectives of the Seminar were (a) to review the up-to-date national situation of women in the context of population and development; (b) to examine the inter-relationships between population change, development and women's position and their implications for development plan and policy formulation; (c) to identify emerging issues based on the interrelationships between population, development and women's role and status; and, (d) to recommend strategies for the effective formulation and implementation of plans and policies for the integration of population, women and development.

The proceedings consists of two parts. Part one is the report of the Seminar and part two contains five background papers of the Seminar, four of which are executive summaries of the final reports of country studies conducted under the project. The full reports of country studies are published separately as Asian Population Studies Series Nos. 132-135. The interesting features of the studies include the attempt to identify the interrelationship between population and development processes and women's role and status quantitatively as well as the simulated scenarios of the three sets of variables which will enhance the vision of planners and policy makers in terms of population and development planning.

The secretariat wishes to take this opportunity to express its deep appreciation to those who directly or indirectly contributed to the successful completion of the project. The cooperation and assistance of study teams, experts, and concerned agencies is gratefully acknowledged. In particular, the secretariat wishes to note with appreciation the continued interest and support of UNFPA, without which this project would not be possible.

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Part One

REPORT OF THE SEMINAR

I. BACKGROUND

In the ESCAP region, the Fourth Asian and Pacific Population Conference, held in Bali, Indonesia in 1992, recognized that "women's status affected their demographic behaviour and the achievement of population goals and that those in turn had an impact on the improvement of women's status and their participation in the development process." In fact, the interrelationships between population factors, development and women's role and status was complex and there is still a dearth of research in this area, particularly, quantitative research. These complicated interrelationships need to be identified to provide systematic guidelines for the formulation of policies and programmes that link population and women's development in development planning.

For the formulation of effective development policies and programmes, careful analyses of the impact of population variables on women's role and status and vice versa have been called for repeatedly. At the 1982 Third Asian and Pacific Population Conference, held in Colombo, it was noted that a clear definition of women's role in development must take into account the interrelationships between demographic factors, population policies and programmes and their impact in turn on women's participation in development. The Amsterdam Declaration (November 1989) recognized that women were at the centre of the development process and that the improvement of their status and the extent to which they were free to make decisions affecting their lives and that of their families would be crucial in determining future population growth. Very recently, the Programme of Action of the 1994 International Conference on Population and Development held at Cairo, urged Governments, inter-governmental organizations, non-governmental organizations, funding agencies and research organizations, to give priority to research on the linkages between women's roles and status and demographic and development processes. The Programme of Action noted that some aspects of those interactions were still poorly understood and knowledge was lacking, especially with regard to developing countries, in areas relevant to a range of population and development policies. In addition, the Programme pointed out that research was needed so that the needs and views of women, as intended beneficiaries of development programmes, could be taken into account in development planning.

In response to the need, the Population Division of ESCAP, initiated a project on population change, women's role and status and development with financial support from the United Nations Population Fund (UNFPA). The prime interest and concerns of the project were the effective and careful formulation of population policies, plans and programmes that explicitly took into account the role and status of women as both contributors and beneficiaries.

The project involved undertaking empirical case-studies on population, development and women's role and status in four countries in Asia: India, Japan, the Philippines and Thailand. Each case-study investigated the interrelationships between population change, development and women's role and status. The study included documentary research or a literature survey and an econometric study. The econometric study included a simulation model which provided a number of scenarios as well as various time-paths of a number of variables for planning purposes. The case-studies have now been completed and its findings are expected to be useful for country members of ESCAP in the formulation and implementation of integrated population and development plans and policies. A comparative study of the four country studies is under way to obtain a better picture of the regional situation.

Not only research but also actions are needed to ensure equal opportunities for females in all sectors of social and economic development as well as in political participation. As mentioned in the Programme of Action of the Cairo Conference, population and development programmes were most effective when steps were taken simultaneously to improve the status of women. Prior to that, the Bali Declaration (Fourth Asian and Pacific Population Conference, Bali, 1992), had noted that "gender concerns should be incorporated in national development planning. Specific guidelines should be drawn up for the integration of women in all sectors of national development with a view to supporting their productive and reproductive roles and their equal partnerships in national development."

Indeed, to achieve the multiple goals of improving the quality of life of women, reducing the rate of population growth and improving the sustainability of development, not only are more knowledge and understanding of their interrelationships required but also serious and appropriate actions to apply the knowledge for the achievement of the goals, through well designed development plans and policies. The Regional Seminar was thus desirable for planners, programme managers and researchers, as well as international, intergovernmental and non-governmental organizations concerned, to share experience and knowledge, and to recommend appropriate strategies and actions.

II. OBJECTIVES

The Regional Seminar on Population Change, Development and Women's Role and Status was held in Bangkok from 22 to 24 May 1995. The long-range objective of the Seminar was to enhance the extent of effective integration of population and development planning in the member and associate member countries of the ESCAP region through the provision and exchange of information and knowledge, based on research findings as well as practitioners' experience. The immediate objectives of the Seminar were:

(a) To review up-to-date national situation of women in the context of population and development;

(b) To examine the interrelationships between population change, development and women's position and their implications for development plan and policy formulation;

(c) To identify emerging issues based on the interrelationships between population, development and women's position;

(d) To recommend strategies for the effective formulation and implementation of plans and policies for the integration of population, women and development.

III. ORGANIZATION OF THE SEMINAR

A. Participation

The participants of the Seminar include planners and population programme managers from 12 countries in the ESCAP region and researchers from Australia, India, Japan, the Philippines and Thailand. Representatives of the United Nations Population Fund (UNFPA), the Food and Agriculture Organization of the United Nations (FAO), the United Nations Development Fund for Women (UNIFEM), the UNFPA Country Support Team for East and South-East Asia, and the Population Council also participated. The list of participants is attached as annex II to the report.

B. Opening of the Seminar

The Seminar was opened by Mr Adrianus Mooy, the Executive Secretary of ESCAP, who welcomed the participants and expressed appreciation to UNFPA for its financial support and to those who had directly or indirectly contributed to the Seminar. Mr Mooy noted that the United Nations had strived for more than three decades to solve the problems of rapid population growth in developing countries and its consequences and that population was still a top-ranking issue worthy of consideration at the highest level of government. At the same time, women's role and status were also a major concern of the United Nations: advocacy for women's equality had been going on for more than four decades. In spite of hard efforts, the progress on women's role and status had been modest. In the ESCAP region, considerable economic and social inequalities persisted. Mr Mooy stressed that population change, development and women's role and status were closely linked and the complicated interrelationships between them needed to be identified to provide systematic guidelines for the formulation of more effective policies and programmes on population and women's development.

C. Election of Officers

The Seminar elected Mr Jiang Zhenhua, Chairperson, Ms Indira Misra, Vice-Chairperson and Ms Myrna Jarillas, Rapporteur.

D. Agenda

The following agenda was adopted:

1. Opening of the Seminar.
2. Election of officers.
3. Adoption of the agenda.
4. Review of national situation on population and development with an emphasis on the role and status of women.
5. The relationships between demographic change, development and the role and status of women: Implications for population and development policies and planning.
6. Recommendations for the formulation of population plans and policies (with an emphasis on women's role and status).
7. Other matters.
8. Adoption of the report.

E. Documentation

Five papers were placed before the participants in support of the agenda items. A list of documents is presented in annex I.

F. Adoption of the report

The participants adopted the report of the Seminar on 24 May 1995.

IV. REVIEW OF POPULATION AND DEVELOPMENT WITH AN EMPHASIS ON THE ROLE AND STATUS OF WOMEN

The review of the situation of countries in the ESCAP region on population, development and women's role and status was based on a background paper prepared by the secretariat and country statements made by participants at the Seminar. The background paper is included in part two of the proceedings.

In the ESCAP region population problems remained a priority concern for many Governments. Although some member countries had made notable progress in slowing birth rates, most were still beset with various complex population issues. The situation was particularly disturbing in many countries in South Asia, where population growth rates remained relatively high and the average standard of living was low.

In mid-1995, the population of the ESCAP region was estimated at 3,323 million persons, with the rate of increase around 1.6 per cent per annum, a decline from 1.8 and 2.0 per cent per annum during the 1980s and 1970s. The female population was about 1,627.8 millions, accounting for 57.4 per cent of the world's female population. The total fertility rate (TFR) for the region was 2.9 per woman, declining from 5 during the 1970s and 3.4 in the period 1985-1990. The life expectancy at birth for the region were 65 years for males and 67 years for females.

Although fertility and mortality rates had declined in many countries of the region, other population problems remained. They included problems related to the elderly, women, urban growth and urban poverty, population and environment, and internal and international migration.

On women's role and status, in most developing countries there had been improvement. Nevertheless, there were still gaps in women's development among countries and subregions. In South Asia, women's health and education had improved somewhat. But the conditions were still far from minimally acceptable levels and were still far behind men's. Their economic position had not improved much – apparently because of their low social, economic and political participation. In much of East, Central and South-East Asia, women's levels of living improved steadily in the 1970s and 1980s. Many of the inequalities between men and women in health, education and employment had been reduced and fertility had also declined considerably. Nevertheless, considerable economic and political inequalities persisted in much of the region because women were confined to low paid and low status jobs and occupations and partly because they were underrepresented in the decision-making process. In developed areas such as Australia, Japan and New Zealand, women's health and education were generally good and their fertility was low. Their economic participation was about two-thirds that of men, but woman were still subject to occupational segregation and wage discrimination.

Emerging issues on women's position in relation to population and development included an impact of changing age structure of a population on women's position, women-headed households, empowerment of women, and reproductive right and reproductive health.

With regard to the situation of countries participating in the Seminar, the following could be highlighted.

The population of China in 1995 was about 1.2 billion people, almost half of the region's population, with an annual growth rate of 1.1 per cent. The TFR was 2 per woman and the life expectancy at birth, 67 and 71 years for men and women respectively. Family size had declined from 4.4 per family in 1982 to 3.1 per family in 1990. The divorce rate was increasing and had reached 1.5 per thousand in 1992. China is a developing country and a country of diversity. Although about 70 per cent of the population are in the rural sector, the economy has been developing fast and the living conditions of the people have improved. Considerable development has been made in education.

Women's status has improved greatly in China following economic development and social progress since the establishment of the new China. Economic reform and opening to the outside world have considerably promoted the productivity of China and provided Chinese women with economic as well as social opportunities for equality with men.

In 1993, 20 per cent of the deputies in the National People's Congress were women. Two of them were elected its Vice-Chairpersons. The number of female scientific and technological staff surpassed 8 million, accounting for 35 per cent of the total. In 1990, 47 per cent of the 112 persons in charge of the key scientific research projects were women. The female illiteracy rate dropped from over 90 per cent in the beginning of the 1950s to 32 per cent in 1990. Females accounted for 33.7 per cent of university students in 1992 and 24.8 per cent in the case of postgraduate students. According to the 1990 census, about 45 per cent of the female employment was in non-agricultural sectors. At present, there are 2,791 clinics for maternal and child care, and 324 women and children health care institutes and special hospitals in China.

By law, Chinese women have equal rights with men. Although there is a gap between the law and the practice, the Government has tried to enforce legislation to ensure women's rights and interests. Women's education, though less than men's, is increasing at a faster rate than men's. Women's employment has also been increasing in recent years. In 1990, 45 per cent of the employed population were women. It was observed, however, that women's cultural qualifications and professional levels still need to be promoted, while some remaining prejudice against women, as well as the rural-urban difference in women's status, has to be removed.

India is the second most populous country in the world and in the ESCAP region. Its population was 846.3 million in 1991 with an annual growth rate of 2.1 per cent, a TFR of 3.6 per woman, and life expectancy at birth of 61 years for men and 62 years for women. About 74 per cent of the population live in rural areas. The gross domestic product (GDP) growth rate was 4.2 per cent and gross national product (GNP) per capita was US$ 290 in 1993. The labour force participation was 22.3 per cent for women and 51.6 per cent for men. Women's literacy is making some progress: female illiteracy rates were 60.7 per cent in

1991 decreasing from 74.3 per cent in 1981, compared with the male rates of 35.9 per cent in 1991 decreasing from 45.2 per cent in 1981. In 1990, the female rate of enrolment in primary education was 41 per cent compared with the male rate of 58.1 per cent.

The status of Indian women could be partly explained by the country's culture. India is one of the most ancient civilizations of the world and is rich with ancient culture and traditions, some of which adversely affect women's status. For example, many religions, while they eulogize women as equal to goddesses, assign to them an inferior position in the society. Women face discrimination and injustice in the name of several customs pursued in different cultural groups throughout India. Sons are preferred over daughters everywhere, except among the matrilineal communities in Kerala, such as the Nairs, Izawas, and artisans and the Khasis in Assam. The preference for sons is partly related to the right of sons to inherit. Girls did not have property rights until recently.

Indonesia is one of the most diverse and heterogeneous countries in the world, consisting of hundreds of ethnic groups with their own culture and languages. The population of Indonesia was about 195.8 million people in 1995 with an annual growth rate of 1.5 per cent. The TFR was 2.7 per woman, declining from 4.7 per woman in 1980, while the life expectancy at birth was 62 for men and 65 for women. The population is unevenly distributed among all islands: around 60 per cent of the people live in Java, where the land comprises only about 7 per cent of the whole archipelago. The proportion of the urban population was 35 per cent in 1995.

Indonesian demographic changes are closely linked with social and economic development. The Government policy on development is aimed at improving the people's welfare by ensuring the availability of adequate food, clothing and housing. Education and health are areas which have also received considerable attention. In addition to strong family planning and health programmes, educational improvement has contributed to the demographic change that has occurred in Indonesia.

More than half the women of reproductive age have ever used modern contraceptive methods and most of the population has access to health service facilities. The percentage of persons who have never attended school has decreased. Better access to education has brought about changes in the labour participation rate during the last two decades, particularly among women, and changes in the age structure of the population.

There has been a growing awareness of the importance of women in regard to both the quality and quantity of the population, as well as their role in the development of the nation. The Government has increasingly focused not only on closing existing gender gaps, but on encouraging the active participation of women as equal partners in the development process.

In the future these efforts will continue. The importance of women's role in the family and in improving the quality of future generations will continue to be valued and emphasized in government plans. Raising the educational level of girls and ensuring equal access to health care resources, as well as continued efforts to raise awareness of nutrition and family health care, are some of the key factors.

Malaysia is one of the fast developing countries in Asia. Its economic development is impressive. During the period 1970-1990, the economy grew at 6.7 per cent per annum in real terms. The GNP per capita was US$ 3,160 in 1995. The population of Malaysia was about 19.9 million in 1995 with the annual growth rate of about 2.3 per cent. The urban population accounts for 54 per cent of the total population. The TFR was 3.4 per woman, while the life expectancy at birth was 69 for men and 74 for women. The illiteracy rate declined from 20 per cent for men and 40 for women in 1980 to 13.5 per cent for men and 30 per cent for women in 1990. The female labour force was 42.2 per cent compared with the male rate of 77.1 per cent in 1990 and women were represented in all occupations. Female educational attainment is improving although the female illiteracy rate is still high owing to low parental aspirations concerning the education of daughters in the past. Women's health status has reached an acceptable standard. Infant and maternal mortality are low compared with other developing countries in Asia. Malaysian women have the right to vote as well as to stand for election. They also have property rights according to religious and civil law. Malaysian women are now aware of their rights although discrimination has not been completely wiped out.

Malaysian women have an important role to play in contributing towards national development. Various indicators show that the status of women has improved considerably. This can be seen by the improvement in their health status, educational attainment and greater participation in socio-economic and political activities. Given the anticipated future tightening of the labour market and Malaysia's future industrial thrust towards attaining the goals of Vision 2020, it is foreseeable that women's contribution and participation in economic activities will become more critical in the years to come.

In view of the increasingly important role of women in development, the Government formulated the National Policy on Women (NPW) in December 1989. The NPW facilitates the participation of women in the social and economic life of the nation. It also establishes guidelines for the integration of women's contributions in national development.

Myanmar had a population of 46.5 million in 1995 with an annual growth rate of 1.8 per cent and a TFR of 4.0 per woman. Myanmar is basically an agricultural economy. In 1992 Myanmar achieved an impressive GDP growth

rate of 9.7 per cent mainly because of the effect of good weather on agricultural production and successful development programmes. The women's economic activity rate was 48 per cent compared with the men's 85 per cent. The majority of employed women were in agriculture. A large proportion of women are literate. The female illiteracy rate was 28.3 per cent compared with the male rate of 14.2 per cent in 1983. The rate of enrolment in primary school was over 100 per cent for both males and females, whereas the enrolment rate in secondary education was only 23 per cent in 1990. The life expectancy at birth of women was estimated at 63 years in 1995 compared with men's 57 years and women's 62 years in 1984.

Economically, Nepal is one of the least developed countries in the ESCAP region. The GNP per capita was US$ 202 in 1994, lowest in the region, while the GDP growth rate was about 2.8 per cent in the same period. Nepal's population was 20.6 million in 1995 with an annual growth rate of 2.6 per cent and with 89 per cent living in the rural areas. The TFR was 5.6 per woman while the life expectancy at birth was 55 years for both men and women. The female labour force participation rate was 45 per cent for women compared with the male rate of 68 per cent. The female illiteracy rates were estimated to be as high as 75 per cent in 1991 decreasing slightly from 88 in 1981, compared with the male rates of 45.5 per cent and 66 during the corresponding periods. The rate of enrolment in primary education in 1990 was around 100 per cent for both boys and girls. The girls' rate indicated an impressive improvement from 52 per cent in 1980. The girls' enrolment in secondary education was also remarkable, 48 per cent compared with boys' 59 per cent in 1990.

By law, there is no discrimination on the basis of sex. Men and women should be paid equally for equal work under the 1976 law on minimum wage for industrial workers. Unfortunately, in Nepal so far, the participation of women in various spheres of public life and decision-making positions, both within the Government-machinery or elsewhere, has remained low. Ninety one per cent of the economically active female population is engaged in agriculture and related activities compared with 75 per cent of men, 5 per cent in personal and community services, and 1 per cent in manufacturing. Employment of women in other sectors is negligible. Women's actual labour force participation is underreported, because much of the work women do in the subsistence farming category is not classified by the household. The Eighth National Plan (1992-1997) adopted national-level policy and working policy for women in development (WID) to increase their participation by raising their social and economic status. The objectives of the Eighth Plan in relation to WID is to bring women into the mainstream of development. To achieve this, His Majesty's Government, has formulated WID specific policies, among which the most significant sectors are education, health, income-generating, and policy decision-making.

Pakistan, with an estimated total population of 126 million and per capita income of $US 430 in 1993, is striving hard to control its population growth rate of 2.8 per cent per annum. The country has more than tripled its population since the first census in 1951.

The current eighth five-year plan (1993-1998) envisages a decrease in the growth rate to 2.7 per cent in 1997-1998 and 2.5 per cent in the year 2000 by increasing the coverage of family planning services from an estimated 5 per cent in rural areas to 70 per cent, and 54 per cent in urban areas to 100 per cent in the terminal year of the Plan.

Rapid growth of population has been a national issue and is accorded priority in national development. The funds for family planning programmes have been increased to about three times that of the seventh plan. In addition a special programme has been launched under the directives of the Prime Minister to recruit 33,000 national health workers and 12,000 village-based family planning workers for offering family planning and MCH services in the rural areas and urban slums. The services are aimed at married women aged 25-35 years.

Islam provides equal status to women in all spheres of life. Therefore there are no restrictions on women in attaining education, inheriting property, holding jobs and receiving remuneration. Women are involved in the decision making and legislative business.

An independent Ministry has been created to look after the affairs of women. It provides funds to NGOs and line departments to support income-generating schemes for women. In addition the first women bank is responsible to provide soft loans to women entrepreneurs and other women's development activities. A women's police force has been created. Women have been appointed as judges in the High Courts. Women have also been appointed as Ambassadors to three countries. Five per cent of the jobs and 10 per cent of the seats in the legislative assemblies are reserved for women.

A special programme, the Social Action programme, has also been launched with the assistance of the World Bank. It covers programmes on family planning, basic health, primary education and rural water supply and sanitation. It specifically emphasizes women's participation in these activities.

The population of the Philippines was 67.6 million in 1995 with an annual growth rate of 2 per cent, declining from 2.4 per cent in the 1980s and 2.7 per cent in the 1970s. The TFR was 3.8 per woman in 1995 declining from about 4.3 in the 1980s. The life expectancy at birth was 66 for men and 69 for women. The GDP growth rate was 1.8 per cent and GNP per capita was US$ 830 in 1993. Labour force participation was 47.8 per cent for women and 81.8 for men in 1993. The majority of women were employed in agriculture and sales. Filipino

women were comparable with men in terms of educational status. The female illiteracy rates were as low as 6.8 per cent in 1990 decreasing from 17.2 in 1980, compared with the male rates of 6 per cent in 1990 and 16.1 in 1980; the rates of enrolment in primary education were 100 per cent for both boys and girls in 1989; the rate of secondary enrolment for girls was relatively high at 75 per cent, higher than the male rate of 71 per cent in the same period.

Women's status in key sectors such as health, education and employment continues to point to the great amount of work that needs to be done by government to improve women's overall status. Major issues to be addressed include the low health status of women, gender tracking in the choice of careers and professions including skills training, low level of participation in decision-making positions both in government and in the private sector, the predominance of women in relatively low-paying jobs and increasing incidence of violence against women, including the worsening plight of overseas women workers.

Government action to improve the status of women has been approached systematically since 1986 through "mainstreaming" or making the whole government system work for women's advancement. The adoption of the Philippine Development Plan for Women; creation of institutional mechanisms to support implementation of programmes/projects in government agencies; mobilizing foreign and local resources; gender training and gender statistics are some of the government breakthroughs in terms of gender and development. However, while the country has this strong policy and programme for women and an equally strong programme for population, their working together in an integrated, synchronized manner is just starting.

Sri Lanka has a population of 18.4 million in 1995 with an annual growth rate of 1.2 per cent and TFR of 2.4 per woman. The life expectancy at birth was 70 years for men and 75 for women. The GDP growth rate was 5.7 per cent and GNP per capita of US$ 600 in 1993. The female labour force participation was 37.9 per cent compared with the male rate of 76.2 per cent. The female illiteracy rates were 16.5 per cent in 1990 decreasing slightly from 18 per cent in 1981, compared with the male rates of 6.6 per cent in 1990 also decreasing from 8.7 in 1981. The enrolment in primary education was almost universal for both boys and girls in 1989, while the rate of secondary enrolment was relatively high, 76 per cent for girls and 71 per cent for boys in the same period.

Major advances in the health and education status of women have taken place over the last five decades, accompanied by declining population growth since the early 1960s. The rise in educational attainment of females has been the single most important socio-economic factor influencing fertility. It has influenced both age at first marriage (which had risen to 24.8 years by 1987) and contraceptive use (66 per cent in 1993).

Female employment has been growing faster than that of males in all sectors during the 1970s and especially during the 1980s. However, much of the increase in employment was mainly in unpaid family work and own-account work; paid employment for women did not increase at a rate commensurate with their increased participation in the labour force in the 1980s. Moreover, the unemployment rate among females is still double that of males. Females constituted 61 per cent of total unemployment in 1990 although their participation rates were half that of males. Thus although women have participated fully in the social development of Sri Lanka, they have not benefited equally from economic development and are still at a disadvantage in a labour surplus economy.

Current government strategy has focused on the development of a Charter for Women which is to be incorporated in an Act of Parliament. Existing legislative enactments are now being revised in the light of the Charter. A National Committee for Women will monitor the progress of Charter implementation. Areas where information, communication and service delivery need to be improved are also being addressed by the ministries concerned.

Thailand's rapid development since the mid-1980s has opened the country to a full range of international influences affecting its economy, society and culture. The phenomenon of the openness to globalization trends and structural changes, in combination with the Government's socio-economic and demographic development policies, has created opportunities for women to gain access to education, participate in new and expanding labour markets, improve their quality of life of their and that of their families and venture into public life and higher levels of decision-making.

The Seventh National Development Plan (1992-1996) targets reducing the population growth rate to 1.2 per cent by the end of the Plan. Total fertility rate has dropped to replacement level in a generation, from 3.3 in 1965 to 2.0 in 1994. Thailand's contraceptives prevalence rate is 75 per cent. The country's "reproductive revolution" is well documented and known as one of the world's most prominent successful stories in population and family planning.

Since the Thai Government adopted the United Nations proclamation of 1975 as part of the International Year of Women and the period 1976-1985 as the Decade for Women, the role and status of women has gained increased prominence. The Fifth Plan (1982-1986) identified women as a special target group, and set targets and indices, especially for 38 of the poorest provinces, in four major areas: employment, education, public health and political and administrative matters. However, the danger of viewing women as a special target group in development was that women tended to be treated as clients and recipients rather than as active participants, and that the approach was more welfare oriented than technically or economically oriented. The women

development plan is also an integral part of the current national development plan.

Thai women, despite many constraints, have played an integral role in the nation's social, cultural and economic development. The majority of women are employed on family farms. Rural women are mainly responsible for the entire range of home management. Few women are employers. Women's participation in local and national politics and administration has not been significant. Most importantly, despite great improvements in the status and position of Thai women, societal attitudes concerning women are slow to change.

Low fertility has significantly reduced Thai women's reproductive rate, freeing them for labour force participation outside the household. Women's changing roles carry potentially both negative and positive consequences for human resources development. On the positive side, higher female participation implies higher returns to investment in women's education and thus encourages parents to support more education and training for Thai girls. Paid work provides women with direct access to income and may raise their status *vis-à-vis* men leading to increased participation in decision-making within the family and community. For negative consequences, the impact of increased outside economic activity among young mothers also raises questions about the quality of children.

Attempts were accordingly made by the Government and NGOs to provide day-care, health and other social services assistance to alleviate women's double burden. Men were encouraged to join and help in housework and child care responsibilities within the home and reduce unique responsibility due to gender differences. Family breakdown and disintegration have thus become more serious concern among policy makers and planners as well as implementators. The present Plan has for the first time formally recognized and included family development as one of the priorities, since rapid socio-economic, political and demographic changes have had impact on the family and women's role. Under the current developmental context it is necessary to consider, focus and develop the individual role, kin and community/social role in order to provide more opportunities for women to develop their position and contributes to the society.

Viet Nam had a population of 74.5 million in 1995 with an annual growth rate of 2.1 per cent and TFR of 3.7 per woman. The life expectancy at birth was 64 years for men and 68 years for women. The GDP growth rate was 7.5 per cent and GNP per capita of $US 170 in 1993. The high rate of inflation experienced in 1991-1992 was brought down to about 15 per cent in 1993. Female labour force participation was 70 per cent for women and 86 per cent for men. The female illiteracy rates were 16.6 per cent in 1990 decreasing from 21.7 in 1979, compared with the male rate of 8 per cent in 1990 decreasing from 9.5 in 1979. The rate of enrolment in primary education was 100 per cent both girls

and boys in 1985. In the secondary level, the enrolment rate was 41 per cent for girls compared with 44 per cent for boys.

The representative of FAO mentioned some of the key areas of concern in agriculture and rural development which affect population and women's status. The gradual transition towards the "feminization of farming" has been occurring as other sectors draw the most educated and mobile labour out of rural areas. At a time when remuneration from agriculture cannot compete with that of industry or the service sectors, rural women are lagging behind rural men as well as behind urban populations by most social and economic indicators.

The outlook for the future of farming and food security in the region also gives cause for concern. After two decades of agricultural growth which outstripped population growth in Asia and the Pacific, the early 1960s showed signs of stagnation and decline particularly in areas of environmental degradation and stress. The trend has continued to the present, in cereal, fisheries and livestock production, yet in the most food-insecure countries population growth tends to remain high. The problem is exacerbated by severe shortages of both land and water. Increased production can no longer be achieved by bringing new land into production, so cropping intensity will have to be increased. Even with new vigor in hybrid seed varieties, this demands higher inputs from biomass and dung residues as well as mineral fertilizer. The impact of such change on rural women is to lengthen their work day, decrease their productivity and remuneration and in extreme situations to push farmers out of agriculture and into beggary, prostitution, illicit trafficking or low-paid labour for other employers.

The status of rural women will improve only with reversals in policies which discriminate against women, and legislation to remove constraints on their access to productive resources. Active plans and strategies to upgrade their knowledge and skills, the provision of excursion and other support to their farming activities, and fair prices for their products will also be needed to encourage women farmers to contribute to agriculture in conjunction with all their other social, economic and political roles in the farm family.

V. RELATIONSHIP BETWEEN DEMOGRAPHIC CHANGE, DEVELOPMENT AND THE ROLE AND STATUS OF WOMEN, AND IMPLICATIONS

The discussion was based on the findings of four country studies on population change, development and women's role and status which had been conducted in Japan, India, the Philippines and Thailand. An executive summary of each country study was provided as a background paper. The papers are included in part two of the *Proceedings*.

INDIA

The study analysed the interrelationships between three sets of variables: economic development, women's role and status, and demographic change. To begin with, a brief description of the trends in major variables considered in the study was provided. It was suggested that appropriate variables for women's status would be female education, female employment and female seclusion. It was considered that the last variable, namely female seclusion, was well covered by education and employment in terms of its relations with demographic change, and hence would not be considered separately. The other variable for women's role and status considered in this study is male-female wage differentials.

After validating the model, five policy simulation exercises were carried out. Higher female literacy and higher female participation in the labour force showed the effect of policy changes with regard to women's role and status variables, higher age at marriage and faster decline in fertility related to demographic variables, and the last simulation, namely higher rate of investment related to economic development.

The simulation results showed the importance of women's role and status variables, when used for policy intervention, in significantly influencing both economic and demographic variables. However, to make a significant development the study suggested the need for major policy shifts for having the desired effects. Further the simulation exercises also pointed towards the desirability of prioritizing key target variables as a particular policy intervention was found to have both positive and negative effects on these key target variables.

The Seminar noted that the simulation period up to 2006 was too short for significant change to be seen in the key variables. It also pointed out that critical issues should be conceptualized in a form that was easy for policy makers to understand.

JAPAN

The study noted that Japan's population had been ageing very rapidly and its tempo was expected to accelerate in the years to come. The status of Japanese women had also been changing through a secular improvement of their educational attainment and increased participation in paid employment. Family organization had been shifting from extended to nuclear households, and the proportion of one-person female households had been growing at a rapid rate.

These demographic and socio-economic transformations were incorporated in a long-term simulation model, consisting of the following three submodels: (i) the population submodel; (ii) the economic submodel; and (iii) the social security submodel. The parameters of these three submodels were estimated using annual time-series data.

The simulated results showed that women's career development and educational planning affected their wages, which, in turn influenced fertility. In addition, the need for in-home care, which the middle-aged women were likely to be engaged in, was projected to increase at a dramatic rate, thus adversely affecting their career development plans. The simulation exercises pointed to the importance of integrating family, labour market, and social security policies, to effectively improve the status of women in a rapidly ageing society like Japan.

Comments were made with regard to the measurement of women's role and status. It was noted that labour force participation and educational attainment might not capture the full range of women's status. The Seminar also noted that the role of women should be given more emphasis in the study. The Seminar also noted that studies should give greater consideration to the qualitative aspects of women's role and status.

PHILIPPINES

Given that a study on women's status is complex and that many of the variables are not quantifiable, a two-track approach was adopted. The first track reviewed comprehensively the interactions. The second track developed an economic-demographic model where women's status was treated explicitly to the extent that data allowed.

Review of the post-war data showed that there was a mixed trend in women's status in terms of educational status. A higher proportion of women who are college graudates existed side-by-side with a higher proportion of women who had no education at all. In terms of employment opportunities, those with supervisory functions were still dominated by men, while the professional and technical category was dominated by women. There were more women unpaid family workers than there were men. There had been a continued improvement in the legal rights of women, largely because of the acts of the United Nations and the influence of the United States of America. More recently women have participated quite actively in politics, in policy-making and public administration.

An economic-demographic model was constructed and three simulations were done, namely, (i) increasing the educational status of women; (ii) delaying marriage and (iii) increasing the labour force participation of women. Simulation results showed that increasing the educational status of women increased the per capita income, reduced the proportion of women who were unpaid family workers, reduced fertility rate and improved the wage rate of women. Delaying marriage, on the other hand, mildly increased per capita income, reduced the fertility rate and improved the educational status of women in younger age-groups. However, that increased the labour force participation rate of women which brought forth a decline in their wage rate and increased the proportion of women who were unpaid family workers. Finally, increasing the labour force participation of

women yielded a slightly higher increase per capita income, a modest reduction in fertility rates and an increase in the proportion of women who were unpaid family workers. But the telling impact was that the process would bring about drastic reductions in the wage rate of women.

The results highlighted the importance of systems analysis in the analyses of the implications of the changing role and status of women. The results showed that only increasing the educational status of women did not have unintended effects. The other two would result in negative labour market impact for women. Therefore, improving the status of women via the latter two routes would need to be accompanied by measures that increased the labour absorption capacity of the economy. Without those measures, improving women's status via those avenues would indeed have positive social impact such as improvement in per capita income and reduction of fertility rate, but the cost would be borne personally by women in terms of lower wages and more of them becoming unpaid family workers. Thus, policies that were designed to improve women's status had to be viewed in coordination with other policies to avoid unintended effects that could frustrate the attainment of the primary objective of improving the status of women.

The relevance of the findings for policy formulation was noted. It was stressed that the information obtained from the interactions of the variables in the model provided important information on how future developments in women's status might occur. However, it was cautioned that much more attention needed to be paid to the quality of data used in the modelling exercise.

Several comments concerning the demographic component of the model were provided. In particular, it was felt that the rate of migration, both internal and international, had been neglected in the study. The importance of migration to both fertility and women's status was noted.

The need to take into account institutional factors in examining the relationships between women's status, economic development and population change was stressed. An example was given of the role of the Catholic Church in shaping the fertility decision-making environment in the Philippines.

THAILAND

With the process of rapid demographic and economic change, women's role and status would also have to change. In Thailand, the following issues related to women's role and status had been emerging: changing women's work status and increasing incidence of female headed households and those women who lived alone.

In order to understand the interrelationships among sets of demographic and economic variables, a model was built and changes in key variables simulated

from 1990 to 2020. The driving forces in the model were endogenous rates of educational investment, marriage and fertility rates, labour force participation and living arrangements. Outcomes generated from the model included population by age, sex and educational attainment; labour supply by sex and educational attainment; the number of households by type; GDP; per capita income; and the male-female wage gap.

Simulation results implied that if people continued to respond to changes as in the past, fertility and marriage rates would decline further, causing a further decline in population growth, and eventually in the size of the population itself, towards the end of the simulation period. Slower population growth would lead to a lower growth rate in the supply of labour which would also reduce economic growth, but per capita income would continue to rise. Different policy simulations indicated that demographic and economic outcomes and women's role and status were interrelated, but the quantitative significance of the relationships varied from one issue to another.

The Seminar observed that the Thai economic submodel was too basic and might lack explanatory power. For example, the Thai economy had gone through major structural changes in transforming from an agricultural to a more industrialized nation during the past 15 years. That suggested the need for a disaggregated economic submodel. The external sector also had played a very significant contribution to the growth of the Thai economy. Explicitly excluding such sectors from the model limited the usefulness of the model. It was recommended that future revisions and modifications of the model should incorporate the demand side and external sector factors.

VI. RECOMMENDATIONS FOR THE FORMULATION OF PLANS AND POLICIES

The Seminar, upon reviewing the current situation and empirical findings of countries and areas of the ESCAP region, recognized that population, women's position and development were intrinsically linked. In particular, women were at the centre of the development process and the improvement of their status and role and the extent to which they were free to make decisions affecting their lives and that of their families would be crucial in determining future population trends and sustainable development. The Seminar also recognized that countries and areas in the region were diverse in economic, demographic, social and cultural conditions, and so were women's status and role. Invariably, however, women were in disadvantaged positions.

1. The Seminar reaffirmed the principles, objectives and Programme of Action of the International Conference on Population and Development adopted at Cairo

in 1994. It commended the achievement of that Conference for its comprehensive treatment of population, development and women's issues. The Seminar urged all Governments of the region to take effective steps to implement the Programme of Action and in particular, the recommendations regarding "gender equality, equity and empowerment of women" and "reproductive rights and reproductive health". The Seminar also recognized and reaffirmed the Bali Declaration adopted at the Fourth Asian and Pacific Population Conference, held in Bali, Indonesia in 1992.

2. In the formulation of population and development plans, policies and programmes, Governments were urged to put greater emphasis on goals related to individual and family well-being rather than goals based mainly on broad demographic concerns. In this connection, priority should be given to those women in poverty and in marginalized sectors of the economy.

3. The formulation of development plans, policies and programmes should be gender-responsive. Gender-based analysis should be an essential instrument in the design, implementation and evaluation of all development activities, including economic planning and population and development policy formulation. Development policies and strategies should be assessed for their impact on women's status throughout their lives, using and developing new and more appropriate indicators to measure such impacts. The objective should be to create an enabling environment where greater opportunities are available to women in the economic, social and political arenas.

4. Where it has not been done, Governments are urged to establish an official national body to be directly responsible for planning, coordinating and monitoring women's development programmes.

5. Education is one of the most important instruments for empowering women with the knowledge, skills and self-confidence necessary for the improvement of women's status by bringing about changes in traditional occupations, increasing their productivity in new types of occupations and providing broader scope for upward mobility; hence, effective steps should be taken to ensure continued schooling of girls at all levels of education; efforts should be made to enhance parental motivation for their daughters' education; adult literacy programmes should be continuously provided and promoted; and vocational training for skill formation should be an integral part of education. In addition, educational counselling for career development as well as placement services for girls and women should be provided at all levels of education, after the primary school level. In some developing countries, Governments should not overlook the need for improvement of infrastructure such as surfaced roads and transport services, which are important factors determining the time allocation as well as security for women in unserved, underserved and remote areas.

6. Governments should ensure that appropriate measures are devised to improve women's ability to earn income beyond traditional occupations to ensure that women's productivity in formal employment is not less than that of men. Women's equal access to the labour market and social security systems should be facilitated, to ensure women's economic self-reliance and lessen the daily burden of domestic responsibilities. In addition, the needs of women in the informal labour sector need to be addressed. Measures could include insurance and credit provision and fair pricing for their labour.

7. Governments should eliminate all discriminatory practices by employers against women in hiring, wages, benefits, training, job safety and job security. Governments should also eliminate all forms of exploitation, abuse, harassment and violence against women.

8. Laws and regulations to protect women's rights and interests should be enacted and actively enforced. Governments should ensure that women and men have equal rights in every aspect, including property and marriage rights. The public, particularly women, should be widely and better informed of women's rights and legal protections.

9. Governments should ensure that reproductive health and family planning programmes direct attention to the education of girls, the health of women, the survival of infants and young children, child care facilities in general, and the empowerment of women.

10. Governments and non-governmental organizations should promote responsible parenthood and ensure that there is no discrimination against the girl child. All children of either sex are entitled to the familial support of both fathers and mothers. The active involvement of men in all areas of family responsibility, including family planning, child-rearing and housework, should also be promoted so that family responsibilities can be fully shared by both partners.

11. As a consequence of population ageing, there will be an increasing number of elderly persons. Governments should provide adequate social welfare for elderly women.

12. Governments, funding agencies and research organizations are urged to give priority to research on changes in women's role and status, and their linkages with demographic processes, causes of change, and socio-economic consequences; the impact of gender inequalities on poverty, sustainable development and associated demographic changes; and changing family structure and system and the impact on women's well-being, including female-headed households.

13. Governments are encouraged to collect and publish social, health and economic statistics and indicators on a gender-disaggregated basis. The quality

and comparability of data should be assessed over time and also cross-sectionally, and also to ensure that the data collected adequately reflect the nature of women's role and status.

14. The Seminar welcomed the initiative taken by ESCAP in commissioning four in-depth case studies bearing on the role and status of women in the wider developmental perspective. The four studies present rigorous simulation models providing future scenarios for planning purposes. In the light of discussion at the Seminar the following points emerged:

(a) In view of the striking demographic, economic and social diversity in the ESCAP region, there should be no attempt at generalizing women's issues in the region as a whole. Nevertheless, there is considerable need and scope for evolving a conceptual framework for a better understanding of the role and status of women. The Fourth World Conference on Women hold in Beijing in 1995 will no doubt improve our perception and comprehension of the complex issues involved in the quantitative and qualitative assessment of the role and status of women. It was suggested that demographic-economic models should also attempt to capture socio-psychological and political factors in their analyses to the extent possible. In particular, the rural areas deserve priority attention, where applicable, in most countries of the ESCAP region. Governments should give attention, where applicable, to the changing situation of women in rural areas, particularly with regard to the increasing involvement of women in farming activities as men go to work in non-agricultural activities. Similarly, the concern for food security, which is primarily a women's issue among the poor, should be prioritized by Governments as this has serious implications for women being forced into vulnerable activities such as some forms of overseas work and prostitution. It was recognized that simulation models did not predict or project a future scenario but served only as tools for planners and policy makers to reorient policies and programmes so that these are gender-responsive. Such exercises do provide valuable clues and future directions to planners.

(b) Among the emerging issues identified, countries which have completed their demographic transition in terms of mortality and fertility declines (for example, some countries in East and South-East Asia) must prepare themselves for a new phase of demographic transition where the rapidly increasing proportion of the elderly (over the age of 65) will dominate the demographic, social and economic scene. The implications of ageing population on the rate of economic growth, the cost of health care and social security and related issues must be understood before new policies are formulated to deal with the situation. The situation is different in countries still facing comparatively high fertility and mortality levels (for example, most of South Asia) where priority must be given to reproductive health and the urgency of bringing down high levels of infant and child mortality as well as levels of fertility. Here again, policies must be gender-responsive and care taken to improve the role and status of women. In particular,

special attention must be paid to the likelihood of negative effects of increasing the female labour force participation rate in bringing about a decline in the female wage rate and even increasing the gap in the female-male ratio of earnings. Such unintended negative effects must be counteracted through a series of legal, fiscal and other measures in order to ensure that the condition of women workers does not deteriorate. This highlights the need for more detailed and disaggregated studies on the labour market and the complex linkages between demographic, economic and social factors.

(c) Generally, the expectation of life at birth is higher for women than for men and as women will outnumber men, the problem of ageing will affect women more than men. The care of the elderly and the aged is generallly the domain of women in the family. In several countries, middle-aged women will be increasingly called upon to take care of the aged women and men. Their role in family and health care must be explicitly recognized and policies formulated so that developmental measures are not only environmentally friendly but even more importantly, gender-responsive and family-friendly. Efforts should be exerted to make care of the elderly a joint responsibility of men and women. Similarly, Governments and NGOs should assume greater responsibility in strengthening the family support system. Given the level of income in many countries of the ESCAP region, the cost of institutional care of the elderly will be prohibitive and the need for family-based health care cannot be overemphasized. New initiatives must be taken to institutionalize social support systems which are family-friendly.

(d) Finally, while the elevation of women to high positions is appreciated, it must be noted that this does not necessarily reflect high status, as the majority of women may continue to face discrimination, neglect and even oppression. Measures to ensure greater participation of women at all levels and in particular, in decision-making processes in the political arena, are crucial for enhancing the status of women. Some countries have introduced legislation to make such participation of women mandatory through the election process. While legislation alone will not ensure a more equitable situation for women, such legislation may serve to trigger the process of an effective involvement of women in all spheres of activity in a manner which is more than symbolic. This calls for a high degree of awareness of women's issues at all levels. ESCAP should take steps to strengthen gender-responsive statistical and information systems and disseminate the relevant data and findings of studies to create such awareness in a sustained manner. The Programme of Action adopted at the 1994 International Conference in Cairo provides valuable guidelines for creating such awareness at the global level, which must be translated into action programmes at the regional and country levels by planners and policy makers. The input of quantitative studies in such planning exercises is essential for understanding the complex linkages between demographic trends and structure and social, economic and political process in order to ensure a marked improvement in the empowerment of women and

quality of life as we enter the twenty-first century. This would also help in justifying increasing investment of private and public funds in women's development programmes to ensure economic growth with gender equity.

15. International agencies and donors are urged to allocate increased resources to generate awareness of the need for gender-responsive development programmes and also for dissemination in a meaningful manner of the findings of research on the complex interrelationship between population change, development and women's role and status.

Annex I

LIST OF DOCUMENTS

Population change, development and women's role and status: a case-study of India.	POP/PCDWS/1
Population change, development and women's role and status: a case-study of the Philippines.	POP/PCDWS/2
Population change, development and women's role and status: a case-study of Thailand.	POP/PCDWS/3
Population change, development and women's role and status in Asia: a regional overview.	POP/PCDWS/4
Population change, development and women's role and status: a case-study of Japan.	POP/PCDWS/5

Annex II

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Annex III

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3.	Mr Philip Guest	"
4.	Mr Jian Zhenhua	"

Part Two

SELECTED BACKGROUND PAPERS *

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* The views expressed in signed articles are those of the authors and do not necessarily reflect those of the United Nations. The papers have been issued without formal editing.

POPULATION CHANGE, WOMEN'S ROLE AND STATUS, AND DEVELOPMENT IN ASIA: A REGIONAL OVERVIEW

ESCAP secretariat

INTRODUCTION

This paper provides an overview of women's position in Asia and the Pacific in the context of population and development planning. Section I deals with demographic and economic backgrounds of countries in the ESCAP region as well as the region's women population. Section II reviews women's position in the region with an emphasis on three major sectors, education, employment and health. Section III illustrates a few emerging issues on women's position in connection with current population and development trends.

I. DEMOGRAPHIC AND ECONOMIC BACKGROUND

A. DEMOGRAPHIC BACKGROUND

Population problems remain a priority concern for many Governments in the region. Although some member countries have made notable progress in slowing birth rates, most still beset with various complex population issues, as well as their consequent chronic poverty and overabundance of people. The situation is particularly disturbing in many countries in South Asia, where persistently rapid population increases usually cause per capita incomes to stagnate and defer sorely needed improvements in the quality of life.

In the mid-1995, the population of the ESCAP region[1] is estimated at 3,323 million persons (table 1), increasing by 839 million from 1980 and 339 million from 1990. The rate of increase is around 1.6 per cent annually, a decline from 1.8, 2.0 and 2.2 per cent per annum during the 1980-1990, 1970-1980 and 1960-1970 periods, respectively. According to the United Nations medium projection, the same growth rate will continue until the year 2000 and the population of the region is forecast to reach 3,540 millions by then.

In 1995, the countries and areas comprising the ESCAP region had population sizes ranging from a low of 2,000 in Niue to 1.23 bilion persons in China. Apart from China and India, four countries with populations exceeding 100 millions were Indonesia, Japan, Bangladesh and Pakistan.

The total fertility rate (TFR) for the region was 2.9 per woman, declining from 5 during the 1970s and 3.4 in the period 1985-1990. The TFR differed widely among subregions. The highest was 4.0 in South Asia while the lowest was 1.9 in East Asia. In South-East Asia, Central Asia and Oceania, TFRs were

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[1] Includes 58 countries and areas: 8 in East Asia, 10 in South-East Asia, 9 of South Asia, 7 in Central Asia and 21 in Oceania.

Table 1. Selected demographic estimates for Asian and Pacific countries and areas, 1995

Country or area and region	Mid-1995 population (thousand)	Annual growth rate (percentage)	Total fertility rate (per woman)	Infant mortality rate (per 1000)	Life expectancy at birth (years)		Percentage aged	Percentage aged
					Male	Female	0-14	65+
ESCAP	**3 323 176**	**1.6**	**2.9**	**59**	**65**	**67**	**32**	**5**
EAST ASIA	**1 430 063**	**1.1**	**1.9**	**32**	**68**	**72**	**25**	**7**
China	1 227 000	1.1	2.0	35[e]	67	71	26	6
Democratic People's Republic of Korea	23 917	1.8	2.3	23	68	75	29	5
Hong Kong	6 207	2.4[a]	1.4	5[b]	76	81	19	10
Japan	125 251	0.2	1.4	4	77	83	16	14
Macau	427	4.6[c]	2.3[c]	7[c]	72	76	24	7
Mongolia	2 410	2.0	3.4	56	63	66	38	3
Republic of Korea	44 851	0.9	1.8	10	68	76	23	6
SOUTH-EAST ASIA	**482 171**	**1.8**	**3.1**	**50**	**63**	**67**	**35**	**4**
Brunei Darussalam	292	3.0	3.1	11	72	77	33	3
Cambodia	10 251	2.8	5.1	109	51	54	45	3
Indonesia	195 756	1.5	2.7	53	62	65	33	4
Lao People's Democratic Republic	4 882	2.9	6.4	92	51	54	45	3
Malaysia	19 948	2.3[b]	3.4	12[b]	69[b]	74[b]	38	4
Myanmar	46 527	2.1	4.0	78	57	61	37	4
Philippines	67 581	2.0	3.8	40	66	69	38	3
Singapore	2 988	1.9	1.8[a]	5[a]	73	78	23	7
Thailand	59 401	1.1	2.1	32	67	71	28	5
Viet Nam	74 545	2.1	3.7	40	64	68	37	5
SOUTH ASIA	**1 316 425**	**2.1**	**4.0**	**80**	**61**	**62**	**37**	**4**
Afghanistan	20 141	2.9	6.6	159	44	45	41	3
Bangladesh	120 433	2.2	4.1	102	57	57	39	3
Bhutan	1 638	1.8	5.7	116	50	54	41	3
India	935 744	1.8	3.6	77	61	62	35	5
Iran (Islamic Republic of)	67 283	2.8	4.8	33	68	69	44	4
Maldives	254	3.2	6.5	55	65	62	35	4
Nepal	21 918	2.5	5.2	93	55	55	42	3
Pakistan	130 660	3.1	5.9	83	62	64	44	3
Sri Lanka	18 354	1.2	2.4	17	70	75	31	6
CENTRAL ASIA	**66 056**	**1.6**	**3.2**	**37**	**67**	**73**	**36**	**5**
Armenia	3 599	1.3	2.5	21	70	75	30	7
Azerbaijan	7 558	1.1	2.4	27	67	75	32	6
Kazakstan	17 111	0.6	2.4	29	68	74	30	7
Kyrgyzstan	4 745	1.6	3.5	34	66	73	37	6
Tajikistan	6 101	2.8	4.7	46	69	74	43	4
Turkmenistan	4 099	2.2	3.8	54	63	69	40	4
Uzbekistan	22 843	2.2	3.7	40	67	73	40	4
OCEANIA	**28 461**	**1.4**	**2.4**	**25**	**71**	**76**	**26**	**10**

Source: ESCAP, 1995 ESCAP Population Data Sheet.

Notes: [a] refers to 1994.
[b] refers to 1993.
[c] refers to 1992.
[d] refers to 1991.
[e] refers to 1990

3.1, 3.2 and 2.4 respectively. The majority of Oceania countries (14 out of 21) still had high TFR of more than 3. The low figure of 2.4 was due the weight of Australia and New Zealand's population which were much larger than other countries in this subregion and their TFRs were 1.9 and 2.1.

In 1995, the life expectancy at birth for the ESCAP region were 65 years for males and 67 years for females. The life expectancy at birth was lowest in South Asia with 61 years for men and 62 for women and highest in Oceania followed by East Asia and Central Asia (table 1). The infant mortality rate (IMR), the number of children below one year of age who die in a specified period per 1,000 live births during the same period, was 59 per 1,000 live births in 1995. For the same period the highest IMR was 80 for South Asia compared to those of East Asia and Oceania, 32 and 25 per 1,000 live births. At the country level, IMRs were above 100 per 1,000 live births in Cambodia (109), Afghanistan (159), Bangladesh (102), and Bhutan (116) as compared to the Japanese's IMR of 4 or Singapore's 5 per 1,000 live births.

In the ESCAP region fertility has been declining for at least three decades. As a consequence, the proportion of the population in younger age groups has been declining while that in the older age groups has been increasing. In 1995, the region had 32 per cent of the population aged below 15. The corresponding figures were 25 for East Asia, 35 for South-East Asia, 37 for South Asia, 36 for Central Asia and 26 for Oceania. The figures indicated the extent of the young age dependency as well as the future entrants to the labour force.

The region had 5 per cent of the population aged 65 and above. The corresponding figures were 7 for East Asia, 4 for South-East Asia and South Asia, 5 for Central Asia and 10 for Oceania. The figures reflected the proportion of the elderly as well as the implications on their old age security problems.

The proportion of population living in the urban area was 34 per cent in 1995, increasing from about 28.7 per cent in 1990.[2] In Asia, not including Oceania, the percentage of urban population was highest in Central Asia (48 per cent) followed by East Asia (37 per cent). South Asia was least urbanized (28 per cent). The annual growth rate of the urban population of the region was 3.2 per cent as compared to the total population growth rate of 1.6 per cent per annum. Thus the proportion of urban population was increasing very fast. In the ESCAP region, the number of cities with population more than a million was projected to increase from 25 in 1950 to 105 in the year 2000 (ESCAP, 1993b, 30).

In 1990s, migration increasingly becomes a major issue in the ESCAP region. For example, net rural-to-urban migration accounts for roughly half of

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[2] Data for 1990 does not include countries in Central Asia.

the urban population growth (with the remainder deriving from natural increase and the reclassification of rural areas as they become more densely settled). Female migration rates, in several countries of the region, are growing faster than male rates. Female migrants predominate all internal migration in the Philippines and the Republic of Korea and also in Thailand. Migration is taken by women as a mean to enhance their status and role (ESCAP, 1994, 111-2). At the international level migration became a significant avenue for the employment of Asian workers since the 1980s. The official estimate of Bangladesh indicated that 104,000 persons went abroad for work in 1990; 147,000 in 1991; and 188,000 in 1992. From Indonesia, 450,000 workers work abroad between 1989 and 1993. The Philippines deployed 686,000 contract workers in 1992. On the receiving side within the region, there were estimated 35,000 Asian labour migrants in Brunei Darussalam in 1989, more than 100,000 in Hong Kong, 500,000 in Malaysia, 161,000 in Singapore and perhaps 100,000 in Thailand. In 1992, the number of cladestine labour migrants was estimatedly 280,000 in Japan and 70,000 in the Republic of Korea (Ibid., 112).

B. WOMEN POPULATION

The female population of the region, according to table 2, is about 1,627.8 millions in 1995 accounting for 57.4 per cent of the world's women population.[3] The majority of the region's women are in East Asia (695.2 millions or 43 per cent) and South Asia (642.2 millions or 39 per cent). The rest of them 242.5 millions in South-East Asia, 33.5 millions in Central Asia and 14.2 millions in Oceania.

At present, about 31.4 per cent of women of the region aged below 15 and 6.0 per cent aged 65 and above. The age structure of women in the region varies by subregions and countries, depending on their past decline in fertility and mortality levels. The proportion of younger women under 15 years of age is highest (37.1 per cent) in South Asia and lowest (25.1 per cent) in East Asia. On the contrary, the proportion of elderly women is lowest (4.5 per cent) in South Asia, and highest (7.7 per cent) in East Asia.

The life expectancy at birth of women is 67 years as compared to male's 65 years indicating that women live longer than men. Yet, there are less women than men in the ESCAP region – 1,627.8 million women compared to 1,700.7 million men in 1995, giving a ratio of 95.7 women per 100 men. This is almost the same as the level found in the 1990 which was 95.8 women per 100 men. Apart from the problems of data and measurement, it was explained that "in

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[3] The projected number of the world's women population in 1995 is 2,836.8 million persons.

Table 2. Female population, proportion per 100 men and age distribution in the ESCAP region, 1990 and 1995

Country or area and region	Female population				Younger women and elderly women			
	Number (000s)		Per 100 males		% under age 15		% 65 years and over	
	1990	1995	1990	1995	1990	1995	1990	1995
ESCAP	**1 506 334**	**1 627 796**	**95.8**	**95.7**	**32.4**	**31.4**	**6.2**	**6.0**
EAST ASIA	**663 315**	**695 395**	**95.7**	**95.4**	**26.3**	**25.1**	**8.4**	**7.7**
China	559 371	592 909	93.9	94.3	27.2	26.1	6.3	6.8
Democratic People's Republic of Korea	11 097	12 129	103.9	102.9	27.8	28.1	5.6	6.2
Hong Kong	2 783	2 869	95.2	95.7	21.2	18.9	9.7	11.4
Japan	67 509	63 689	111.3	103.7	19.2	15.5	27.5	16.4
Macau	172[a]	209[b]	–	–	–	–	–	–
Mongolia	1 082	1 194	98.7	98.3	40.3	37.4	3.6	3.9
Republic of Korea	21 301	22 396	98.8	99.1	25.0	22.8	6.3	7.1
SOUTH-EAST ASIA	**221 778**	**242 448**	**100.9**	**100.6**	**35.9**	**34.0**	**4.4**	**4.7**
Brunei Darussalam	123	138	90.4	92.6	36.6	34.1	3.3	3.6
Cambodia	4 631	5 313	109.9	107.6	40.2	42.7	2.9	3.1
Indonesia	91 683	99 035	100.6	100.5	35.1	32.4	4.1	4.6
Lao People's Democratic Republic	2 139	2 475	103.7	102.8	43.4	44.2	3.2	3.3
Malaysia	8 870	9 978	98.3	98.2	37.4	37.2	4.1	4.3
Myanmar	21 011	23 346	101.0	100.7	37.2	36.7	4.3	4.4
Philippines	30 226	33 568	98.9	98.7	39.2	37.8	3.5	3.7
Singapore	1 336	1 408	97.7	97.6	22.7	22.2	6.7	7.5
Thailand	27 724	29 349	99.5	99.7	31.2	27.7	4.9	5.6
Viet Nam	34 035	37 838	104.2	103.1	37.2	36.0	5.8	5.8
SOUTH ASIA	**577 089**	**642 210**	**93.7**	**93.9**	**38.1**	**37.1**	**4.2**	**4.5**
Afghanistan	7 287	9 808	93.9	95.0	43.8	40.7	3.1	3.0
Bangladesh	52 332	58 316	93.8	93.9	41.5	39.6	3.2	3.1
Bhutan	768	813	98.8	99.0	40.5	40.8	3.9	3.8
India	410 898	452 291	93.4	93.6	36.2	35.2	4.6	4.9
Iran (Islamic Republic of)	29 023	33 082	97.0	96.7	44.8	43.3	3.5	3.9
Maldives	105	123	96.3	96.1	47.6	47.2	2.9	3.3
Nepal	9 466	10 746	96.7	96.2	42.2	41.7	3.3	3.5
Pakistan	58 622	67 822	92.6	93.3	44.6	44.9	2.9	3.1
Sri Lanka	8 588	9 209	99.5	100.7	32.2	29.8	5.1	5.9
CENTRAL ASIA	**31 003**	**33 530**	**103.8**	**103.1**	**35.6**	**34.7**	**6.2**	**6.9**
Armenia	1 706	1 827	103.7	103.2	29.1	28.5	6.9	8.7
Azerbaijan	3 642	3 857	104.8	104.2	31.5	30.3	6.2	7.2
Kazakstan	8 583	8 784	106.1	105.5	30.2	28.5	8.0	9.2
Kyrgyzstan	2 230	2 417	104.5	103.9	36.4	36.0	6.6	7.3
Tajikistan	2 660	3 061	101.3	100.7	42.3	42.3	4.7	5.0
Turkmenistan	1 854	2 072	102.8	102.1	39.5	38.5	4.9	5.1
Uzbekistan	10 328	11 512	102.3	101.6	39.9	39.0	5.1	5.4
OCEANIA	**13 149**	**14 213**	**99.0**	**99.1**	**25.9**	**25.5**	**10.5**	**10.8**

Source: United Nations, The Age and Sex Distribution of the World Populations, the 1994 Revision.

Notes: [a] ESCAP, Economic and Social Survey of Asia and the Pacific, 1992, page 33.

[b] ESCAP, 1995 ESCAP Population Data Sheet.

many areas, social and cultural factors deny girls and women from the same nutrition, health care and other support that males receive. In a few countries widow burning and dowry death persist, and female infanticide is still suspected in some rural areas. A new phenomenon – abortion on the basis of male preference – is also known to occur. In these circumstances, women have higher death rates than men, especially at early child-bearing ages and sometimes throughout their child-bearing years" (United Nations, 1991, 11). The explanation could hardly be satisfactory since there are less women than men in both high and low-income countries: in high-income countries and areas such as Hong Kong, Singapore, and the Republic of Korea; in middle-income level such as Malaysia, the Philippines and Thailand; and low-income countries in South Asia where all countries except Sri Lanka have less women than men in 1995. In South-East Asia, half of the subregion's countries have less women than men. Further investigation will be needed to explain the phenomenon.

C. ECONOMIC BACKGROUND

Current reviews of economic development in the region are well documented (ESCAP, 1994a and 1993a; Ahmed, 1993). This section gives a very brief picture of the economic development of countries in the region, based on two indicators, the level of per capita GNP and growth rates of GDP.

According to table 3, the ESCAP region has 3 developed countries – Australia, Japan and New Zealand – and 4 newly developed economies – Hong Kong, the Republic of Korea, Singapore and Taiwan Province of China. Except the Republic of Korea, these economies have GNP per capita of more than $US 10,000. The rest of the ESCAP countries are classified as developing, least-developed or economies in transition. Countries with very low per capita income are found mostly in South Asia.

During 1992-1995, economic growth was most pronouncing in China with two-digit growth rates. Three countries in South-East Asia, Indonesia, Malaysia and Thailand also experienced relatively high growth of more than 6 per cent per annum. The growth rates in the newly industrialized economies was also impressive, between 5-6.3 per cent per annum. During this period, countries in South Asia also performed very well due to their policy reforms (ESCAP, 1994a, 16).

According to ESCAP, the long-term economic development issues during this period include (i) growth and stability, (ii) poverty and distribution equity, and (iii) the environment problems or sustainable development. The detailed discussion and review of these issues could be found in the Economic and Social Survey of Asia and the Pacific (ESCAP, 1993a, 22-30).

Table 3. Selected ESCAP economies and subregions. Growth rates of GDP at constant market prices, 1992-1995[a] and GNP per capita

Country or area and region	*Actual 1992*	*Estimated 1993*	*Forcast 1994*	*Forcast 1995*	*GNP per capita 1993 ($US)*
Developed ESCAP countries	**1.5**	**0.3**	**1.7**	**2.9**	
Australia	1.9	2.4	3.0	2.3	17 510
Japan[b]	1.5	0.1	1.6	3.0	31 450
New Zealand	0.6	3.6	2.4	2.4	12 900
Newly Industializing Economies	**5.6**	**5.5**	**6.3**	**6.2**	
Hong Kong	5.0	5.9	5.6	5.8	17 860
Republic of Korea	4.8	4.5	6.5	6.0	7 670
Singapore	5.8	8.1	6.3	6.7	19 310
Taiwan Province of China	6.7	6.0	6.3	6.6	–
China[b]	12.8	13.2	10.0	9.6	490
ASEAN-4	**6.2**	**6.3**	**6.9**	**7.2**	
Indonesia	6.3	6.3	6.4	6.7	730
Malaysia	8.5	7.6	8.1	8.2	3 160
Philippines	0.0	1.8	4.2	5.0	830
Thailand	7.4	7.7	8.0	8.2	2 040
Central Asia					
Armenia	–	–	–	–	660
Azerbaijan	–	–	–	–	730
Kazakstan	–	–	–	–	1 540
Kyrgyzstan	–	–	–	–	830
Tajikistan	–	–	–	–	470
Turkmenistan	–	–	–	–	1 380
Uzbekistan	–	–	–	–	960
South Asia	**4.6**	**4.9**	**5.5**	**5.9**	
Bangladesh	4.2	5.0	5.0	5.5	220
India	4.2	5.2	5.6	6.0	290
Nepal	3.1	2.8	4.9	5.0	160
Pakistan	7.8	3.0	5.0	5.4	430
Sri Lanka	4.3	5.7	5.9	6.0	600
Pacific Islands	**7.0**	**8.3**	**1.7**	**2.9**	
Fiji	4.2	4.5	4.8	5.0	2 140
Papua New Guinea	9.0	10.6	0.3	2.0	1 120
Samoa	-5.0	1.9	2.5	3.0	980
Solomon Islands	5.0	4.8	4.5	4.5	750
Tonga	1.9	2.5	3.3	3.4	1 610
Vanuatu	0.0	1.9	2.5	2.5	1 230
Developing ESCAP region[c]	**6.7**	**6.9**	**6.8**	**7.0**	

Sources: National Sources; IMF, International Financial Statistics, November 1993;
UN ESCAP Estimates, cited in (Ahmed, 1993, 4);
GNP per capita from World Bank, The World Bank Atlas, 1995 (Washington, D.C., 1995).

Notes:
[a] The fiscal years of South Asia countries are defined as follows:
FY 1993/93 = 1992 for India; FY 1991/92 = 1992 for Bangladesh, Pakistan and Nepal.
[b] Growth rates of real GNP.
[c] Based on data for 20 developing countries representing more than 95 per cent of the population of the region; GDP at market prices in US dollars in 1990 have been used as a weighting scheme to calculate the regional and sub-regional growth rates.
[d] ESCAP, 1995 ESCAP Population Data Sheet.

II. WOMEN'S POSITION

This overview is focussed on a few key indicators of women's position in three major sectors, namely, employment, education, and health. This is not only because of space and time constraints, but also the paucity of comparable inter-regional data and because it is generally agreed that indicies relating to educational attainment, health levels, and employment are particularly important for studying the association between population and women's position (Selvaratnam, 1988, 75).[4] A more extensive review of women's position in Asia and the Pacific can be refered to an ESCAP report on "Women in Asia and the Pacific 1985-1993" (ESCAP, 1994c).

A. EMPLOYMENT

Employment is a major mean for women to participate in economic development as well as to secure or establish their economic position. Employment is considered a good measure of women's economic position and to some extent their social status (Powers, 1988, 192). There are many aspects of female employment that can be looked into such as their labour force participation, status in employment, occupational or professional composition, wage rate, working condition, progress in work, etc. For the purpose of an overview and because of space and time constraints, however, only a few indicators will be briefly reviewed.

In looking at these indicators, it should also be kept in mind that, first, it has been observed that most official labour force statistics underestimate women's economic participation, especially in the rural areas of developing countries where a large portion of the population is involved in subsistence agriculture (Population Reports, 1988, 6). Secondly, the household is a major centre of work for most women. Women's work in the home can include many kinds of economic activity, for example, subsistence agriculture, production of goods for trade and keeping accounts for their husbands' business. It also includes other unpaid housework. That so much work takes place in the home and is caught up with the daily routine in housework makes it difficult to measure women's work accurately.[5] Thirdly, working women in developing countries are concentrated in low-productivity agricultural or services industries and in the informal sector. In these sectors, economic activities are difficult to measure. Fourthly, women have double roles for both productive and reproductive work. This creates inflexibility, constraints and disadvantages for women in terms of choice of

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[4] For discussion regarding definition and indicators of women's position see for example (Selvaratnam, 1988), (Mahadevan, 1989, 12 and 352-361) and (Powers, 1988).

[5] This leads to the use of "time allocation" as an indicator of women's work and to improvements in statistical concepts and methods to better reflect women's work.

work, training, terms of services, etc. In the agricultural economy, the two roles could be conveniently combined. But when the country becomes more urbanized and the economy shifts away from agricultural production, it becomes more and more difficult for women to adjust their double roles.

Labour force participation:[6] In 1990, the region's women population aged 15 and above were about 1,117.2 million persons. A rought calculation by applying an assumed economic participation rate of about 47 per cent give a total number of female labour force of about 529 million. Table 4 gives the participation rates of male and female by country in the ESCAP region and subregions in 1990 or the latest year. It is observed that, whereas the male participation rates vary little from country to country, female participation differ enormously between countries. In Asia, the female participation rate was highest in Thailand, 76 per cent, while for the whole ESCAP region, the highest rate was in Vanuatu, 79.3 per cent. Other countries with female participation rates of 50 per cent and above include Kazakstan (62.8 per cent), New Zealand (53.9 per cent), Australia (51.8 per cent), Singapore (50.6 per cent) and Japan (50.3 per cent). The rates are very low in countries in South Asia, particularly in Bangladesh, Pakistan and the Islamic Republic of Iran.[7]

The female participation rates are much lower than the male rates in all countries in the region. According to table 4, the gaps were wider in countries in South Asia, particularly in Afghanistan, the Islamic Republic of Iran and Pakistan. However, it was thought that the disparity between female and male participation rates narrowed down at least through the 1970s and early 1980s (ESCAP, 1989, 3) for the female participation rates generally increased during that period. In fact the male participation also increased. Thus the share of female in the total labour force might not change much. Between 1970 and 1990 there was little change in women's share in the labour force[8] in the region (United Nations, 1991, 83). In East Asia and South-East Asia, the shares stayed at high levels, 40 and 35 per cent, respectively, while in South Asia it remained at low levels of around 20 per cent. In Oceania, the share rose from 26 to 29 per cent. In 1995, a rough calculation from data in table 4 indicates an impressive improvement in the women's share in the total labour force: 38 per cent for the whole region, increased to 43 per cent (from 40 per cent) for East Asia, increased to 41 from 35 per cent for South-East Asia and to 41 from 29 per cent for Oceania and increased to 24 from 20 per cent for South Asia.

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[6] Empirical analyses on female participation rates in the ESCAP region are also well documented in (ESCAP, 1989; Selvaratnam, 1988; United Nations, 1991).

[7] In a number of Muslim countries the custom of "purdah" inhibits the employment of women. These cultural traits may affect not only the extent to which women actually engage in income-producing work, but also the reporting of these activities in the censuses or labour force surveys (Selvaratnam, 1988, 84).

[8] Refers to the proportion of female labour force to the total labour force of both sexes.

Table 4. Labour force participation in selected ESCAP countries and areas, latest year

Country or area and region	*Year*	*Participation rate*		*Population aged 15+*		*Labour force*	
		Male	*Female*	*Male*	*Female*	*Male*	*Female*
ESCAP*	**1990**	**74.9**	**47.4**	**1 156 939**	**1 117 268**	**866 973**	**529 085**
EAST ASIA*	**1990**	**85.6**	**67.0**	**540 512**	**521 217**	**462 814**	**349 243**
China	1990[a]	87.0	70.0	460 823	438 130	400 916	306 691
Democratic People's Republic of Korea	1990[a]	81.0	64.0	8 241	8 717	6 675	5 579
Hong Kong	1993	78.1	46.5	2 418	2 328	1 888	1 083
Japan	1993	78.0	50.3	50 986	53 791	39 769	27 057
Macau	1992	72.1	46.9	218	209	157	98
Mongolia	1990[a]	87.0	72.0	748	747	651	538
Republic of Korea	1991	74.7	47.4	17 078	17 295	12 757	8 198
SOUTH-EAST ASIA*	**1990**	**83.7**	**55.5**	**155 332**	**159 903**	**129 943**	**88 780**
Brunei Darussalam	1990[a]	–	–	100	91	–	–
Cambodia	1990[a]	86.0	52.0	2 604	3 042	2 239	1 582
Indonesia	1992	82.6	49.1	65 469	66 932	54 077	32 864
Lao People's Democratic Republic	1990[a]	88.0	71.0	1 316	1 380	1 158	980
Malaysia	1990	77.1	42.2	6 233	6 263	4 806	2 643
Myanmar	1990[a]	85.0	48.0	14 345	14 772	12 193	7 091
Philippines	1993	81.8	47.8	20 829	20 881	17 038	9 981
Singapore	1993	79.1	50.6	1 108	1 095	876	554
Thailand	1988	87.4	76.0	20 930	21 221	18 293	16 128
Viet Nam	1990[a]	86.0	70.0	22 398	24 226	19 262	16 958
SOUTH ASIA*	**1990**	**60.5**	**20.0**	**430 088**	**403 674**	**260 130**	**80 554**
Afghanistan	1979	87.5	7.2	6 117	5 812	5 352	418
Bangladesh	1990[a]	87.0	7.0	37 637	35 235	32 744	2 466
Bhutan	1990[a]	89.0	43.0	482	481	429	207
India	1991	51.6	22.3	313 052	293 198	161 535	65 383
Iran (Islamic Republic of)	1986	81.0	9.0	19 217	18 772	15 566	1 689
Maldives	1990	77.3	20.2	68	65	53	13
Nepal	1990[a]	87.0	43.0	6 365	6 262	5 538	2 693
Pakistan	1992[b]	83.5	14.0	40 892	37 386	34 145	5 234
Sri Lanka	1993	76.2	37.9	6 258	6 463	4 769	2 449
CENTRAL ASIA*	**1990**	**0.8**	**0.6**	**20 473**	**21 884**	**6 444**	**5 201**
Armenia	–	–	1 223	1 307	–	–	
Azerbaijan	1993	78.8	46.8	2 463	2 687	1 941	1 258
Kazakstan	1989	78.5	62.8	5 736	6 280	4 503	3 944
Kyrgyzstan	–	–	1 436	1 547	–	–	–
Tajikistan	–	–	1 706	1 766	–	–	–
Turkmenistan	–	–	1 209	1 274	–	–	–
Uzbekistan	–	–	6 700	7 023	–	–	–
OCEANIA*	**1990**	**72.6**	**50.1**	**10 534**	**10 590**	**7 643**	**5 307**
Australia	1993	73.7	51.8	7 031	7 158	5 182	3 708
Cook Islands	1986	83.0	46.8	–	–	–	–
Fiji	1990[a]	86.0	22.0	260	254	224	56
Guam	1988[a]	76.0	50.0	54	49	41	25
New Zealand	1993	73.2	53.9	1 339	1 401	980	755
Papua New Guinea	1990[a]	87.0	58.0	1 350	1 251	1 175	726
Tonga	1986[a]	69.0	18.0	–	–	–	–
Vanuatu	1989	88.6	79.3	47	48	42	38

Source: ILO. Year Book of Labour Statistics, 1992 and 1994, table 1.
United Nations. The Age and Sex Distribution of the World Populations, the 1994 Revision

Notes: * Based on countries reported only.
[a] ILO estimated participation rate, (United Nations, The World's Women, 1970-1990, table 8).
[b] Refers to 1991-92.

Status in employment: Table 5 gives the percentage distribution of employed women by the status of employment: employer, own-account worker (self-employed person), employee (wage labour) and unpaid family worker. Women's wage employment is highest in industrialized economies: in Hong Kong, Macau, and Singapore, with more than 90 per cent of employed women were wage workers whereas in Australia and Japan approximately three fourth of employed women were in wage employment. South-East Asia Kazakstan and the Islamic Republic of Iran are developing countries which have the majority of their female labour force in wage employment. Countries with less than 50 per cent of employed women in wage employment included Indonesia, Philippines, Thailand, Maldives and Pakistan. A large proportion of women are unpaid family workers in Thailand, Pakistan, Indonesia, the Republic of Korea and the Philippines.

Table 5. Percentage distribution of the employed female by status in employment in selected ESCAP countries and areas, latest year

Country or area and region	*Employer and/or own account worker*		*Employee*		*Unpaid family worker*		*Not classified by status*	
	% of total female	*% female to both sexes*	*% of total female*	*% female to both sexes*	*% of total female*	*% female to both sexes*	*% of total female*	*% female to both sexes*
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*
EAST ASIA								
Hong Kong (1993)	3.2	11.5	92.9	39.4	2.0	86.8	2.0	36.3
Japan (1993)	9.4	30.9	75.0	38.6	12.8	82.1	2.9	42.3
Macau (1992)	3.9	15.7	90.4	43.9	3.3	86.6	2.4	45.6
Republic of Korea (1991)	18.6	27.0	56.2	38.2	23.2	87.6	2.0	34.4
SOUTH-EAST ASIA								
Indonesia (1990)	32.8	26.8	29.3	30.9	34.4	63.6	3.4	43.3
Malaysia (1990)	16.3	24.6	64.7	34.8	18.9	64.7	–	–
Philippines (1993)	29.7	30.2	39.7	36.4	20.6	54.8	10.0	41.8
Singapore (1993)	5.1	16.6	90.3	43.2	1.8	82.9	2.8	42.3
Thailand (1988)	16.8	26.9	23.6	42.0	56.0	63.7	3.6	54.9
SOUTH ASIA								
Sri Lanka (1993)	14.5	18.2	53.6	34.6	11.0	55.8	21.0	51.9
Iran (Islamic Republic of) (1990)	12.4	27.9	76.3	42.8	–	–	11.3	48.0
Maldives (1990)	43.8	22.0	42.7	17.3	6.5	28.8	7.0	21.4
Pakistan (1991-92)	12.9	4.5	22.6	9.9	47.6	33.5	16.8	38.1
CENTRAL ASIA								
Kazakstan (1989)	0.2	70.0	96.7	46.4	2.2	91.1	0.9	66.7
OCEANIA								
Australia (1993)	10.9	32.1	78.2	44.3	1.1	56.8	9.8	38.4
New Zealand (1993)	12.0	28.7	77.7	47.5	1.5	65.5	8.9	40.6

Source: ILO, Year Book of Labour Statistics, 1992 and 1994, table 2.A.

It has been observed that over the years, there have been a transition in the pattern of female employment status with an increasing number being reported as employees instead of unpaid family workers. This trend may reflect the expansion of the number of women working outside their homes as opportunities for paid employment have increased in recent years as well as the opportunity to work at home on home-based subcontract work which increased the number of women reported as paid employees (Selvaratnam, 1988, 86).

Occupational distribution: Most women are still working in agriculture in much of Asia and the Pacific. According to table 6, in most developing countries a majority of the female workers were engaged in agriculture and related occupations while in the developed and newly industrializing countries they concentrated in production, clerical and services occupations. In the Republic of Korea, a newly industrializing country, the proportion of women in agriculture dropped from 26.2 per cent of the female labour force in 1986 to 18.1 per cent in 1991 while the proportion of women in production increased from 22.7 per cent in 1986 to 24.3 per cent in 1991.[9] Everywhere in the region, the smallest proportion of women was in administrative and managerial occupation. However, the proportion of male in this occupation was also small although it was larger than that of women except in Australia, New Zealand and Kazakstan.

In the professional category, in the 1990s, the proportion of the total female labour force exceeded the proportion of the total male labour force in almost every country except Australia, New Zealand, Macau and Singapore (table 6). These countries also had greater proportion of women than men in this category in 1980s (Selvaratnam, 1988, 86). It should be cautioned that, first, the absolute number of women in this category was generally less than men, except in the Philippines, Thailand and Kazakstan; second, in most countries, the majority of women reported as "professional and technical" are only employed in low-paid jobs such as nurses and teachers, which involve hard work with relative low pay and low status (Ibid.; United Nations, 1991, 87), and are ones of the first professions open to women.

Table 7 shows women representation in each occupational group. In East Asia, women dominate the Clerical category and are underrepresented in the Administrative and managerial category. Women are well represented in the Professional category except in Singapore and Pakistan. In South Asia, women representation are relatively low in most occupation particularly in the Islamic Republic of Iran, Maldives and Pakistan. In South-East Asia, women representation in Administrative and managerial occupation is relatively higher than other subregions except in Australia, New Zealand and Kazakstan.

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[9] Data for 1986 from (Selvaratnam, 1988, 87).

Table 6. Percentage distribution of the employed population by occupation for selected countries or areas in ESCAP region

Country or area and region	*Year*	*Professional, technical and related workers*		*Administrative and managerial workers*		*Clerical and related workers*		*Sales workers*		*Services workers*		*Agricultural and allied workers*		*Production/ related workers, transports equipment operation*		*Unclassified*	
		Male	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*
EAST ASIA																	
Hong Kong	1993	8.7	10.8	5.9	2.2	11.7	35.8	14.1	11.9	16.0	23.6	0.8	0.3	40.7	13.6	0.0	0.0
Japan	1993	11.3	11.9	5.7	0.7	12.3	27.7	14.8	13.6	6.9	11.9	5.4	6.4	41.0	24.4	0.3	0.5
Macau	1992	8.1	7.0	7.5	1.4	11.1	23.5	0.0	0.0	18.2	15.8	0.2	0.0	52.5	49.6	0.3	0.2
Republic of Korea	1991	7.0	8.2	2.5	2.5	12.6	13.4	12.6	16.9	7.2	16.9	14.9	18.1	40.7	24.3	0.0	0.0
SOUTH-EAST ASIA																	
Indonesia	1990	3.1	4.2	0.3	0.0	5.9	2.8	11.2	18.7	2.6	6.7	49.2	47.5	24.8	15.6	0.5	1.1
Malaysia	1990	6.5	10.1	2.9	0.8	7.4	14.4	11.6	10.7	9.9	14.1	26.8	25.1	34.7	25.1	0.0	0.0
Philippines	1993	3.0	8.9	1.3	1.1	2.7	5.9	6.4	22.0	5.6	11.8	48.6	29.3	24.2	10.5	0.2	0.3
Singapore	1993	14.2	4.2	6.4	5.2	13.5	13.9	6.2	26.4	12.9	13.4	0.2	0.0	37.8	33.6	6.2	0.2
Thailand	1988	2.8	3.6	1.9	0.6	2.6	2.8	6.8	11.5	2.8	4.1	63.8	65.2	16.6	8.7	0.0	0.0
SOUTH ASIA																	
Sri Lanka	1993	8.2	13.3	1.5	0.9	3.3	4.4	0.0	0.0	11.6	5.9	27.8	23.6	34.2	30.7	3.2	0.6
Iran (Islamic Republic of)	1986	6.1	26.2	0.3	0.0	2.8	3.9	6.5	1.0	3.7	1.9	26.0	19.4	29.7	17.5	12.0	4.9
Maldives	1990	5.7	12.1	1.4	1.0	8.1	16.1	6.4	3.5	13.7	7.5	28.1	14.6	30.0	39.7	5.9	4.5
Pakistan	1991-92	4.3	5.6	1.0	0.0	4.8	0.7	12.9	2.1	4.5	4.2	41.8	54.9	26.0	14.8	0.0	0.0
CENTRAL ASIA																	
Kazakstan	1989	16.6	36.6	4.9	5.1	0.0	2.1	0.6	7.2	0.8	10.0	16.2	11.3	56.6	22.6	3.8	4.3
OCEANIA																	
Australia	1993	13.6	6.2	12.2	13.3	5.0	6.2	22.2	3.6	5.9	28.6	9.1	22.4	26.9	13.8	3.4	4.0
New Zealand	1993	15.1	8.5	8.7	13.8	9.9	10.3	5.0	22.5	7.1	17.9	11.7	6.4	32.3	11.5	0.2	0.0

Source: ILO, Year Book of Labour Statistics, 1992 and 1994, table 2.B.

Table 7. Female representation by occupation in selected ESCAP countries and areas, latest year[a]

Country or area	*Year*	*Professional, technical and related workers*	*Administrative and managerial workers*	*Clerical and related workers*	*Sales workers*	*Services workers*	*Agricultural and allied workers*	*Production/ related workers, transports equipment operation*	*Unclassified*
EAST ASIA									
Hong Kong	1993	41.8	18.3	64.1	32.8	46.3	22.5	16.2	–
Japan	1993	41.8	8.5	60.7	38.5	54.3	45.1	29.0	38.5
Macau	1992	38.1	11.8	60.0	–	38.3	23.0	40.4	35.4
Republic of Korea	1991	44.1	4.0	41.9	47.4	61.1	45.2	28.7	–
SOUTH-EAST ASIA									
Indonesia	1990	42.9	10.6	27.2	48.2	57.9	34.9	26.2	59.3
Malaysia	1990	46.6	12.1	51.5	33.7	43.5	34.0	28.4	–
Philippines	1993	62.7	33.7	56.7	67.4	56.1	26.3	20.7	39.5
Singapore	1993	16.9	35.8	41.2	74.3	41.3	9.3	37.3	2.2
Thailand	1988	52.7	22.2	48.6	60.0	56.1	47.4	31.7	34.4
SOUTH ASIA									
Sri Lanka	1993	45.0	24.6	40.7	–	20.2	30.3	31.5	7.5
Iran (Islamic Republic of)	1986	32.6	3.5	12.7	1.5	7.0	8.1	6.3	4.2
Maldives	1990	34.6	14.0	32.6	11.5	12.2	11.4	24.9	15.4
Pakistan	1991-92	18.4	3.0	2.7	2.9	13.9	17.8	8.6	–
CENTRAL ASIA									
Kazakstan	1989	66.0	47.7	96.3	92.5	92.4	38.2	26.1	50.3
OCEANIA									
Australia	1993	25.0	43.9	47.5	10.3	78.1	63.8	27.2	46.1
New Zealand	1993	30.2	55.0	44.7	78.0	66.0	30.0	21.6	37.5

Source: ILO, Year Book of Labour Statistics, 1992 and 1994, table 2.B.

Note: [a] Expressed as a ratio women workers to the total of workers of both sexes in each occupation.

In general it was observed, however, that occupational segregation by sex still exist. For example, few women work in manufacturing and transportation with the exception of East and South-East Asia. Within an occupational group women are usually in the less prestigious jobs – there are more women than men in lower-paid professional and technical occupations such as teaching (United Nations, 1991, 87).

B. EDUCATION

Education is one of the vital factors determining women's position. Education influences a woman's chances of paid employment, her earning power, her age at marriage and childbearing, her exercise of legal and political rights and her power or ability to care for herself and her children. Education is also one of the areas that women have made considerable progress. During the past few decades, most countries in the region had made vigorous efforts to expand their education and had made impressive progress in reducing illiteracy as well as achieving universal education. Nevertheless, as far as the ESCAP region is concerned, there was still a gender gap in education: women dominated the ranks of the illiterate in most countries and remained underrepresented within the educational system.

Female illiteracy remained very high in South Asia, particularly in Nepal, Pakistan and India, where between 60-87 per cent of women aged 15 and over was illiterate (table 8). In South-East Asia, except the Philippines and Thailand, female illiteracy remained considerable and much higher than males'. In East Asia, China's female illiteracy rate was still high and much higher than males'.

At the primary level of education, in 1990s girls' enrolment caught up with boys' in most countries in the region except Afghanistan, Lao People's Democratic Republic, Bangladesh, Bhutan, Nepal, and Pakistan where the gender gaps were still wide. Most countries have succeeded in attaining gross female enrolment ratios in excess of 90 per cent and in narrowing the gap between the two sexes. Countries with the female primary enrolment ratios of less than 80 per cent include Afghanistan, Bangladesh, Bhutan, Pakistan and Papua New Guinea (tables 9 & 10).

At the secondary school level, enrolment ratios were comparable between male and female. Countries which female secondary enrolment exceeded males' included the Republic of Korea, Brunei Darussalam, Malaysia, the Philippines, Singapore, Sri Lanka, Australia, Fiji and New Zealand. Countries which female secondary education was far behind males' include Lao People's Democratic Republic, Bangladesh, Nepal and Pakistan (tables 9 & 10).

At the tertiary level, it has been observed that women increasingly are enrolling in colleges and university, but disparities remain among countries and

Table 8. Illiteracy rates of population aged 15 and over in selected ESCAP countries or areas by sex, 1980 and latest year

Country or area	*Year 1980s*	*Per cent illiterate*		*Latest year*	*Per cent illiterate*	
		Male	*Female*		*Male*	*Female*
EAST ASIA						
China	1987	16.9	40.6	1990	13.0	31.9
Hong Kong	1971	9.9	35.9	–	–	–
Macau	1970	16.2	26.1	–	–	–
Republic of Korea	1970	5.6	19.0	1990(e)	0.9	6.5
SOUTH-EAST ASIA						
Brunei Darussalam	1981	14.8	31.0	1991	7.5	17.5
Indonesia	–	–	–	1990	11.7	24.7
Lao People's Democratic Republic	–	–	–	1985	8.0	24.2
Malaysia	1980	20.4	40.3	1990(e)	13.5	29.6
Myanmar	1983	14.2	28.3	–	–	–
Philippines	1980	16.1	17.2	1990	6.0	6.8
Singapore	1980	8.4	26.0	1990	4.9	17.0
Thailand	1980	7.7	16.0	1990	4.4	8.8
Viet Nam	1979	9.5	21.7	1990(e)	8.0	16.6
SOUTH ASIA						
Afghanistan	1979	69.7	95.0	–	–	–
Bangladesh	1981	60.3	82.0	–	–	–
India	1981	45.2	74.3	1991	35.9	60.7
Iran (Islamic Republic of)	1986	37.0	59.4	1991	25.6	43.6
Maldives	–	–	–	1985	8.8	8.5
Nepal	1981	68.3	90.8	1990(e)	62.4	86.8
Pakistan	1981	64.6	85.2	1990(e)	52.7	78.9
Sri Lanka	1981	8.7	18.0	1990(e)	6.6	16.5
CENTRAL ASIA						
Armenia	–	–	–	1989	0.6	1.9
Azerbaijan	–	–	–	1989	1.1	4.1
Kazakstan	–	–	–	1989	0.9	3.9
Kyrgyzstan	–	–	–	1989	1.4	4.5
Tajikistan	–	–	–	1989	1.2	3.4
Turkmenistan	–	–	–	1989	1.2	3.4
Uzbekistan	–	–	–	1989	1.5	4.0
OCEANIA						
American Samoa	1980	2.5	2.8	–	–	–
Fiji	–	–	–	1986	9.8	15.8
Guam	1980	3.6	3.5	1990	1.0	1.0
New Caledonia	1976	7.8	9.7	–	–	–
Papua New Guinea	–	–	–	1990(e)	35.1	62.2
Tonga	1976	0.3	0.5	–	–	–
Vanuatu	1979	42.7	52.2	–	–	–

Source: UNESCO Statistical Yearbook, 1992 and 1994, table 1.3.

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Table 9. Gross school enrolment ratios in selected ESCAP countries or areas, by level of education, 1980 and latest year

	Year	Primary		Secondary		Tertiary		Latest	Primary		Secondary		Tertiary	
	1980s	Male	Female	Male	Female	Male	Female	year	Male	Female	Male	Female	Male	Female
EAST ASIA														
China	1980	121	103	54	37	2.0	0.6	1990	140	129	53	41	2.2	1.1
Democratic People's Republic of Korea	–	–	–	–	–	–	–	1987	108	100	–	–	–	–
Hong Kong	1980	108	105	63	65	14.2	6.4	1987	105	104	71	75	–	–
Japan	1980	101	101	92	94	40.6	20.2	1989	102	102	99	97	36.8	24.2
Mongolia	1980	108	108	85	97	–	–	1986	98	102	87	96	17.3	26.4
Republic of Korea	1980	109	111	82	74	23.0	8.1	1993	101	103	92	93	57.2	34.6
	–	–	–	–										
SOUTH-EAST ASIA	–	–	–	–										
Brunei Darussalam	1980	106	108	59	63	0.8	0.8	1992	118	107	70	73	–	–
Indonesia	1980	115	100	35	23	–	–	1992	116	113	47	39	–	–
Lao People's Democratic Republic	1980	123	104	25	16	0.7	0.3	1989	116	91	31	21	1.8	0.9
Malaysia	1980	93	92	50	46	5.4	3.2	1990	93	93	55	58	7.4	7.0
Myanmar	1980	93	89	–	–	–	–	1990	107	104	23	23	–	–
Philippines	1980	112	110	59	69	24.0	28.3	1989	113	111	71	75	–	–
Singapore	1980	109	106	56	59	9.3	6.4	1989	110	107	70	71	–	–
Thailand	1980	100	97	30	28	–	–	1990	92	88	34	32	–	–
Viet Nam	1980	111	106	44	40	3.8	1.0	1985	106	100	44	41	–	–
SOUTH ASIA														
Afghanistan	1980	54	12	16	4	–	–	1989	31	16	–	–	–	–
Bangladesh	1980	76	46	26	9	5.1	0.9	1990	78	68	22	11	5.4	1.2
Bhutan	1985	34	19	6	1	–	–	1988	31	20	7	2	–	–
India	1980	98	67	39	20	8.0	3.1	1990	109	83	54	33	–	–
Iran (Islamic Republic of)	1985	106	85	52	35	6.3	2.5	1988	113	97	60	42	8.7	3.9
Nepal	1980	122	52	33	9	4.9	1.1	1990	108	99	59	48	6.0	4.8
Pakistan	1980	51	27	20	8	–	–	1989	49	27	28	12	3.9	1.6
Sri Lanka	1980	105	100	52	57	3.2	2.5	1989	109	106	71	76	4.9	3.5
OCEANIA														
Australia	1980	112	110	69	72	27.3	23.4	1992	107	107	82	84	36.1	43.1
Fiji	1980	119	120	53	57	–	–	1992	128	127	59	62	–	–
New Zealand	1980	111	111	82	84	33.2	23.7	1992	104	103	91	92	45.7	53.8
Papua New Guinea	1980	66	51	15	8	2.8	0.9	1992	78	66	15	10	–	–
Solomon Islands	1980	83	65	22	9	–	–	1992	99	81	19	12	–	–

Source: UNESCO Statistical Yearbook, 1992 and 1994, table 3.2.

Table 10. Female enrolment as a percentage of male enrolment in the ESCAP region. 1987-1988 and 1988-1989

Unit: Per cent

Country or Area	*1987-1988*			*1988-1989*		
	Primary	*Secondary*	*Tertiary*	*Primary*	*Secondary*	*Tertiary*
Afghanistan	52	70	18	52	45	18
Bangladesh	87	48	25	88	50	22
Bhutan	65	29	–	65	29	–
China	97	74	55	100	77	50
Democratic People's Republic of Korea	–	100	–	–	100	–
Fiji	100	106	56	101	104	57
Hong Kong	99	107	–	99	106	56
India	97	56	47	97	61	47
Indonesia	98	81	–	96	84	–
Iran (Islamic Republic of)	93	71	43	91	73	45
Lao People's Democratic Republic	80	71	60	80	68	50
Malaysia	100	102	87	100	105	95
Mongolia	103	109	149	103	110	–
Myanmar	98	92	94	98	92	–
Nepal	51	40	–	51	40	–
Pakistan	55	42	46	55	45	41
Papua New Guinea	86	63	39	85	63	38
Philippines	102	100	–	98	104	–
Republic of Korea	100	94	48	100	97	53
Singapore	100	104	–	100	104	–
Sri Lanka	100	109	68	100	107	71
Thailand	–	–	–	–	97	–
Viet Nam	94	93	–	94	93	28

Sources: UNDP, Human Development Report 1991 (Table 10).
UNDP, Human Development Report 1993 (Table 9).
(ESCAP, 1994b, Table B8)

Note: All percentage figures are expressed in relation to the male average, which is indexed to equal 100. The smaller the figure the bigger the gap, the closer the figure to 100 the smaller the gap, and a figure above 100 indicates that the female average is higher than the male.

subregions. In the mid 1980s, the enrolment ratio in higher education was around 30 women per 100 men in South Asia, whereas they were about 73 women per 100 men in East and South-East Asia (table 11 and United Nations, 1991, 46). In Mongolia, Australia and New Zealand, female enrolment was higher than males'. While it used to be observed that there was a concentration of female students in liberal arts and education, while the preference of the male students was for law, business administration, and the pure and applied sciences, especially engineering (Selvaratnam, 1988, 78), the trend had improved. Women generally made rapid gains relative to men in advanced training for law and business, representing on average 38 per cent of those enrolled for advanced training for law and business in Asia and the Pacific. Women also made significant gains in science and engineering, representing a high proportion of the people trained in these fields (table 12).

In conclusion, as reported at the Second Asian and Pacific Ministerial Conference on Women in Development at Jakarta, 1994, there had been notable improvements in the region in the access of girls and women to educational opportunities, including formal education, non-formal education and informal education (ESCAP, 1995, 3). The literacy levels of girls and their enrolment in primary and secondary levels of education had also improved. Nevertheless many problems still remained including gender gaps in literacy rates and in school enrolment rates in some developing countries, gender gaps at higher levels of education in most countries, lower representation of women in vocational education and in access to science and technology-based education, and higher drop-out rates among girls.

C. HEALTH

The Asian and Pacific region had made significant progress in women's health, as depicted by the drop in infant and maternal mortality rates and the rise in female life expectancy rates. The reductions in infant, child and maternal mortality rates had been, however, unevenly distributed among and within countries (Ibid.).

In 1995, the life expectancy of women in the region was 67 years, two years longer than men's (table 1). Women tended to outlive men everywhere except Maldives and Nepal. Women outlived men by 4 years in East Asia and South-East Asia, 6 years in Central Asia, 5 years in Oceania, but only 1 year in South Asia. In general, the following pattern of changes in the 1980s was observed: first, life expectancy for both sexes had risen for almost all countries; second, women's life expectancy became higher than men's for most countries now than it was 10 years ago; and third, there was still a wide difference among countries, most countries in South Asia had much lower life expectancy than those in East Asia and Australia and New Zealand (table 13).

Table 11. Number of female students enrolled at third level and women enrolled per 100 men in the ESCAP region, 1980 and latest available year

Unit: Number

Country or Area	*Year (1980)*	*Number of women enrolled*	*Women enrolled per 100 men*	*Year (latest)*	*Number of women enrolled*	*Women enrolled per 100 men*
Afghanistan	–	–	–	1986	3 124	16
Australia	1980	146 676	83	1990	255 655	111
Bangladesh	1980[a]	33 348	16	1989	10 914	29
Bhutan	1980	70	28	1984	45	26
Brunei Darussalam	1980	72	101	1987	409	121
China	–	–	–	1990	713 370	50
Cook Islands	–	–	–	1980	134	79
Democratic People's Republic of Korea	–	–	–	1987	93 000	40
Fiji	–	–	–	1988	739	49
French Polynesia	1980	7	35	1982	33	94
Guam	–	–	–	1988	2 529	149
Hong Kong	1980[b c]	9 743	34	1984	5 101	55
India	1979[d]	1 396 466	35	1986	1 430 661[e]	42
Indonesia	1981	176 195	45	1984	271 406	47
Iran (Islamic Republic of)	–	–	–	1988	67 796	46
Japan	1980[f]	791 264	49	1989	586 530	37
Lao People's Democratic Republic	1980	441	46	1989	1 448	73
Malaysia	1980	22 199	63	1990	26 286	82
Mongolia	–	–	–	1986	10 193	142
Nepal	1980[g]	7 358	24	1983[h]	9 549	25
New Caledonia	1980	169	63	1985	336[c]	79
New Zealand	1980[i]	31 510	68	1989	30 831	96
Pakistan	1979	42 046	37	1989	59 668	32
Papua New Guinea	1980[j]	1 112	28	1986	581	21
Philippines	1980	681 140	115	1986	1 074 045	119
Republic of Korea	1980[k l]	148 076	32	1987[m]	454 260	43
Samoa	1981	45	8	1983	67	97
Singapore	1980[g]	9 087	64	1983	6 909	95
Sri Lanka	–	–	–	1988	14 938	75
Tonga	1981	289	72	1985	19	29
Viet Nam	1980[n]	27 090	31	1980	27 090	31

Sources: United Nations, Women's Indicators and Statistics Microcomputer Database (WISTAT). Version 2 (1 May 1991).
United Nations, Statistical Office, New York, 1993.
(ESCAP, 1994b. Table B4).

Notes:
[a] Science and engineeing include home economics
[b] Universities and equivalent institutions
[c] Data refer to Hong Kong Polytechnic
[d] Science and engineering include commercial and business administration and home economics also transport and communications
[e] Data refer to all third level institutions
[f] Including correspondence courses "Liberal arts" include mass communications and documentation Science and engineering including law, commercial and business administration
[g] Liberal Arts include social and behavioural science
[h] Estimated data
[i] Including multiple counting of students enrolled in more one field of study
[j] Law and Business include Mathematics and Computer Science
[k] Science and engineering include transport and communication
[l] Data for vocational enducation refer to technical institutes mached to the Ministry of Education only
[m] Data exclude open university
[n] Including correspondence courses.

Table 12. Women's third level enrolment in mass communication, sciences and engineering in selected ESCAP countries and areas, latest available year

Unit: Per cent

Country or Area	Year	Mass communication and documentation		Mathematics and computer science		Medical sciences and health related		Natural Sciences		Tertiary sciences and engineering	
		Number of females enrolled	Women enrolled/ 100 men	Number of females enrolled	Women enrolled/ 100 men	Number of females enrolled	Women enrolled/ 100 men	Number of females enrolled	Women enrolled/ 100 men	Number of females enrolled	Women enrolled/ 100 men
Australia	1980	15 431	180	/	/	12 280	110	14 106	51	–	37
Bangladesh	1989	–	–	1 375	22	2 087	38	12 416	20	–	19
Brunei Darussalam	1987	–	–	32	97	–	–	–	–	–	–
Cambodia	–	–	–	–	–	–	–	–	–	–	4
Fiji	1989	–	–	–	–	404	197	–	–	–	37
Hong Kong	1984	614	156	648	35	792	48	618	28	–	–
India	1986	1 695	54	/	/	62 415	56	252 727	48	–	28
Indonesia	1984	1 999	61	791	14	7 978	47	8 337	64	–	27
Iran (Islamic Republic of)	1988	679	178	1 985	33	27 893	74	4 531	53	–	11
Japan[1]	1989	/	/	3 879	26	68 540	77	9 028	20	–	8
Lao People's Democratic Republic	1989	–	–	119	43	537	118	87	87	–	20
Malaysia[2]	1990	1 131	160	2 322	104	1 632	108	4 043	85	–	41
Mongolia	1986	13	76	300	137	5 190	732	415	247	–	82
Nepal	1989	–	–	–	–	645	74	–	–	–	–
New Caledonia	1985	–	–	126	51	–	–	/	–	–	–
New Zealand[3]	1989	190	50	/	/	7 046	324	4 013	62	–	35
Pakistan[4]	1986	–	–	/	/	7 335	51	2 932	29	–	–
Papua New Guinea	1986	62	163	0	0	639	142	53	16	–	9
Philippines	1980	–	–	–	–	106 096	614	58 853	182	–	–
Republic of Korea[5]	1990	7 713	117	27 490	43	41 552	98	21 676	45	–	15
Singapore	1983	–	–	218	165	370	49	1 522	178	–	–
Sri Lanka[6]	1988	–	–	/	/	1 568	78	3 190	72	–	25
Tonga	1985	–	–	–	–	75	–	–	–	–	–

Source: UNESCO, Statistical Yearbook 1992, (ESCAP, 1994b, Table B5).

Notes: / Data included elsewhere with another category.

1 Data refer to all third level institutions.

2 Not including polytechnics.

3 Data include multiple counting of students enrolled in more than one field of studies.

4 Data do not include arts and sciences colleges and Open Admission University.

5 Data exclude open colleges.

6 Not including other third level institutions.

Table 13. Estimates for female life expectancy at birth and female life expectancy as a percentage of male life expectancy in the ESCAP region, 1980, 1985 and 1993

Unit: Years and per cent

Country or Area	*Female life expectancy at birth*			*Female life expectancy as a percentage of male life expectancy*		
	1980	*1985*	*1993*	*1980*	*1985*	*1993*
Afghanistan	37.0	42.0	44.0	100.0	102.4	102.3
Australia	74.5	78.8	80.0	100.0	109.0	108.1
Azerbaijan	–	–	75.0	–	–	110.3
Bangladesh	57.1	54.6	55.0	100.2	98.0	100.0
Bhutan	46.0	43.0	50.0	100.0	97.7	104.2
Brunei Darussalam	57.0	–	73.0	100.0	–	104.3
Cambodia	32.5	44.9	52.0	108.3	106.9	106.1
China	64.0	70.0	73.0	100.0	102.9	105.8
Cook Islands	68.0	–	–	100.0	–	–
Democratic People's Republic of Korea	–	–	74.0	–	–	108.8
Fiji	68.3	69.8	74.0	100.0	100.0	105.7
French Polynesia	–	–	73.0	–	–	107.4
Guam	75.6	–	79.0	108.8	–	108.2
Hong Kong	77.9	79.2	81.0	108.8	107.3	108.0
India	54.7	56.0	61.0	101.1	98.2	101.7
Indonesia	55.2	58.2	65.0	106.2	106.2	104.8
Iran (Islamic Republic of)	59.0	63.0	68.0	101.4	106.1	101.5
Japan	78.8	80.5	82.0	107.4	107.6	107.9
Kazakstan	–	–	74.0	–	–	113.8
Kiribati	52.0	53.0	56.0	100.0	100.0	109.8
Kyrgyzstan	–	–	73.0	–	–	112.3
Lao People's Democratic Republic	42.0	46.0	53.0	100.0	104.5	106.0
Macau	–	–	73.0	–	–	100.0
Malaysia	66.9	68.9	73.0	100.0	100.0	105.8
Maldives	47.0	59.5	62.0	100.0	95.7	95.4
Marshall Islands	64.2	65.9	62.6[a]	106.1	106.1	105.0
Micronesia (Federated States of)	68.1	58.0	65.9[b]	106.4	100.0	105.9
Mongolia	62.8	65.0	65.0	105.9	106.6	103.2
Myanmar	54.0	61.0	60.0	100.0	107.0	107.1
Nauru	62.0	–	–	100.0	–	–
Nepal	46.0	46.0	53.0	100.0	97.9	98.1
New Caledonia	–	–	70.0	–	–	100.0
New Zealand	76.3	76.4	78.0	108.8	106.9	108.3
Pakistan	50.0	50.0	59.0	100.0	96.2	100.0
Papua New Guinea	50.7	54.0	57.0	104.1	105.9	103.6
Philippines	63.4	67.9	67.0	106.0	105.9	106.3
Republic of Korea	–	73.3	76.0	–	112.9	110.1
Samoa	64.0	64.9	70.0	100.0	100.0	109.7
Singapore	74.7	76.4	78.0	100.0	106.9	106.8
Solomon Islands	61.4	65.1	78.0	102.5	100.0	105.8
Sri Lanka	66.0	72.0	74.0	100.0	105.9	105.7
Tajikistan	–	–	71.0	–	–	107.6
Thailand	63.0	66.0	71.0	100.0	106.5	107.6
Tonga	58.0	64.4	70.1	100.0	100.0	106.5
Turkmenistan	–	–	68.0	–	–	109.7
Tuvalu	59.0	–	–	100.0	–	–
Uzbekistan	–	–	72.0	–	–	109.1
Vanuatu	57.0	62.5	67.9	100.0	100.0	107.8
Viet Nam	63.0	67.0	67.9	100.0	106.5	108.1

Sources: ESCAP Population Data Sheet 1992 and 1991

Women's health can also be reflected by maternal mortality which refers to all pregnancy-related deaths. Maternal mortality is also linked to lack of health service facilities and personnel, especially for women in rural areas. Poor transport networks in developing countries do not allow easy access to medical care, which often centreed in cities (United Nations, 1991, 57). However, maternal mortality has received global attention only since 1987 (United Nations, 1992, 6), therefore, reliable statistics on this type of mortality are lacking for most developing countries and are to be treated with great cautions.

In the 1980s, maternal mortality was very high in most countries in South Asia and some countries in South-East Asia (Myanmar and Cambodia). As shown in table 14, the maternal mortality rate was as high as 800 to 1,000 per 100,000 in Afghanistan, Bhutan, Cambodia, and Nepal. In Australia, New Zealand and most countries in East Asia, the rate was almost negligible, for example, 5 and 6 per 100,000 in Australia and Hong Kong, respectively. It has been said that high rates of maternal mortality reflect not only women's health status but also their society's devaluation of them because much of the high maternal mortality prevailing in developing countries is preventable. Maternal deaths occur primarily in situations where society places a lower value on women's lives (ESCAP, 1994c, 47).

III. POPULATION CHANGE, DEVELOPMENT AND WOMEN: EMERGING ISSUES

Population change, development and women's position are intrinsically related. Population factors such as fertility, mortality and migration, affect and are affected by development factors such as income, employment, education, health, resource use, and women's role and status. Indeed, numerous studies and writings have been undertaken on the population and development interrelationships while relatively less empirical research have been conducted on the three-way interrelationship between population change, development and women's position. Nevertheless, it almost goes without saying that women play a key role in reproduction and production, both formally and informally, and both visibly and invisibly. In turn, development process and population trends and related factors affect women's position, directly and indirectly.[10] The discussion on this topic will be carried out under agenda item (5). In this section some emerging issues on women's position, in the context of population and development planning and in connection with current demographic and development trends, will be briefly and broadly identified to provide an overview of the issues.

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[10] For example see (United Nations, 1989; Selvaratnam, 1988; Lim, 1991, Ware, 1981; and Mahadevan, 1991).

Table 14. Estimates for maternal mortality rates per 100,000 births in the ESCAP region, around 1980 and latest available year

Country or Area	*Year*	*Maternal mortality rate*	*Year*	*Maternal mortality rate*
Afghanistan	1975	690	1988	1,000
Australia	1980	10	1988	5
Azerbaijan	–	–	1988	29
Bangladesh	(1981)[a]	3,000	1988	650
Bhutan	–	–	1988	800
Cambodia	–	–	1988	800
China	–	–	1988	130
Cook Islands	–	–	1988-90	221
Democratic People's Republic of Korea	1981	41	1988	130
Fiji	1980	32	1988	150
Hong Kong	1980	5	1988	6[b]
India	1978	480	1988	550
Indonesia	1976	300	1988	300
Iran (Islamic Republic of)	–	–	1988	250
Japan	1980	21	1989	11[c]
Kazakstan	–	–	1988	53
Kyrgyzstan	–	–	–	43
Lao People's Democratic Republic	–	–	1988-90	300
Macau	1982	40	–	–
Malaysia	1981	59	1988-90	20
Maldives	–	–	1987	646
Micronesia (Federated States of)	–	–	1988-90	150
Mongolia	1978	140	1988	250
Myanmar	1978	120	1988	600
Nepal	1979	850	1988	850
New Caledonia	1984	160	–	–
New Zealand	1980	14	1988	18
Pakistan	(1978)[a]	700	1988-90	400
Papua New Guinea	1980	900	1989	700
Philippines	1980	125	1988-90	80
Republic of Korea	1983	38	1989	10
Samoa	–	–	1986	400
Singapore	1980	5	1988	14
Solomon Islands	1984	10	–	–
Sri Lanka	1979	80	1988	180
Tajikistan	–	–	1988	39
Thailand	1981	81	1988	180
Tonga	–	–	1988-90	300
Turkmenistan	–	–	1988	55
Tuvalu	–	–	1982-90	191
Uzbekistan	–	–	1988	43
Vanuatu	1983	107	–	–
Viet Nam	1982	100	1988	400

Sources: United Nations, Women's Indicators and Statistics Microcomputer Database (WISTAT), Version 2 (1 May 1991).
United Nations, Statistical Office, New York, 1993.
United Nations Children's Fund, The State of the World's Children 1990 (New York, 1990).
UNDP, Human Development Report 1993 (Table 8).

Notes:
[a] When the reference year is not known, publication year is given instead and enclosed in ().
[b] Excluding Vietnamese refugees.
[c] Excluding Japanese citizens living outside Japan.

A. CHANGING AGE STRUCTURE AND WOMEN'S POSITION

The first issue is concerned with an implication of fertility and mortality decline on the age structure of population experienced by most countries in Asia and the Pacific. With the decline in ferlity rate the proportion of the population in the young age group, say below fifteen, as well as those in the working age, will decrease, whereas the decline in mortality will result in increases in the proportion of the population in the older age group (60 or 65 and over). In brief the impact of demographic transition results in the decrease proportion of children and of young labour force, and the increase in the proportion of the elderly.

The issues on women's position in connection with this demographic trend can be illustrated. First, because there is less children than before, there is more time for women for activities, social or economic, outside home, or at home but away from childrearing. Second, as found in countries experience demographic transition such as Singapore or Japan, the supply of labour is increasingly scarce. This implies a greater demand and opportunities for women to enter the labour force and increase their formal and visible economic position. The increase in the tendency of women to participate in the labour force will have an implication on increased women's demand for education and training, for one reason, their training, education and skill will determine their earning and work status. It also implies that there is a need for a policy to widen women's occupational choices if the slow growth of population is to be sustained. Third, the increased proportion of the elderly as a result of demographic transition has an implication on women's position. As found in the Japanese case study, to be presented under agenda item (5), Japanese women have to take the primary role in taking care of the elderly and there is an increased demand for them in the labour market. Fourth, the shift in the age structure also affects women directly because both the absolute number and the proportion of the elderly women will increase. As already mentioned changing age structure results in an increased proportion of the elderly. Since women tend to live longer than men, the proportion of the women elderly will be larger than the male elderly. It could be noted that the impact or implications of demographic change on women's position differs by the level of development of the country concerned.

B. POPULATION CHANGE AND WOMEN-HEADED HOUSEHOLDS

The precarious situation of women-headed households is increasingly recognized in Asia and there is a tendency that the number of women-headed households will be increasing in the region at present. Women-headed households include elderly women living alone, single mothers (widowed- or separated) living with their families, wives of long-term migrants with or without families. In the 1980s the proportion of women-headed households in Asia and the Pacific

was only 14 per cent compared to over 20 per cent in Africa, the developed regions and Latin Ameria and the Caribbean (United Nations, 1991, 17). About one third of women-headed household in Asia consisted of women living alone. An economic characteristics of women-headed households is poverty. In developing countries, more than half the women who are heads of the households do not have a spouse but do have other household members. In multi-person households headed by women, there often is only one working age provider rather than two while women living alone usually have no earnings at all. As such, a disproportionate number of women-headed households are living in poverty (Ibid., 18; United Nations, 1994c, 32).

Demographic factors, particularly, mortality or life expectancy, divorce, and out migration, are considered major determinants of increasing number and proportion of women-headed households in many countries in the region. Women's life expectancy increased faster than men's. As a result, women tend to outlive men everywhere except Bangladesh, Maldives and Nepal. Hence, women are more likely to be widowed in their later years and become dependent on their children, saving or the state. According to the Population Crisis Committee (1988, 5), all of 99 countries studied had more women who were widowed, divorced or separated than men. The differences between countries were striking. For example, in China there were 182 women in these categories for every 100 men in the same categories. In Bangladesh, there were 927 widowed, divorced or separated women for every 100 men in these categories (Ibid.). During the past two decades, divorce rates have increased drammatically in most developed nations. In Japan, divorce rates have more than doubled since the mid-1960s (Ogawa and Ermisch, 1994). These changes have produced a large increase in families headed by a single parent, a large proportion of which are women. In labour exporting countries such as Bangladesh, Philippines, Thailand, Pakistan, the out migration of men for employment leave behind their spouses. These demographic phenomena lead to increasing number and trend of women-headed households.

C. WOMEN EMPOWERMENT

In the context of population and development, empowerment of women has received worldwide attention. At the 1994 International Conference on Population and Development (ICPD), the United Nations' third decenial intergovernmental conference on population issues, every plenery speaker never forgot to mention the subject of "gender equality, equity and empowerment of women". Indeed, the ICPD Programme of Action contains an entire chapter on the subject. This chapter calls on countries to empower women and eliminate inequality between men and women; eliminate all forms of discrimination against the girl child and the root causes of son preference; increase public awareness of the value of girl children, beyond their potential of child-bearing; and promote equal participation of women and men in all areas of family planning and household responsibilities.

In the ESCAP region, the 1994 Second Asian and Pacific Ministerial Conference on Women in Development at Jakarta noted that empowerment of women was the most important concern facing the Asia and Pacific region. Without empowering women, their effective participation in economic and social development was not possible (ESCAP, 1995, 4).

To understand the issue, it may be useful to note that there are two broad approaches to assessing women's needs and designing programmes to address them. These are the so-called **status of women approach** and the **empowerment of women approach.**[11] The first approach compares the positions of women and men in a society or cross-nationally. After identifying the areas in which women are disadvantaged, planners design programmes to address the problems.

The empowerment of women approach aims to help women gain control of their lives. This approach often begins with women identifying and prioritizing their own needs without emphasis on comparing their position with men. Programme organizers then help women to design programmes that meet those needs (Population Reports, 1994, 7). Women could be empowered by improving their legal status; by increasing their involvement in decision-making process at all levels; by strengthening and promoting networking among women's organizations; by eradicating violences against women; and by fostering positive portrayal of women in the media (ESCAP, op.cit.).

The two approaches are not necessary distinct and both of them have advantages. Objective measures of women's status points out the problems for top-level policy-makers and helps motivate their support for policy changes. For example, the United Nations has utilized status measures such as years of education and hourly wages in its efforts to eliminate discrimination against women. The empowerment approach, on the other hand, may bring faster results for individual women. It is believed that involving women in solving their own problems builds their skills and self confidence. In addition, the solutions found are more locally appropriate (Ibid.). Thus using both approaches could speed up improvements for women.

D. REPRODUCTIVE RIGHT AND REPRODUCTIVE HEALTH

In the context of women, development and population, reproductive right and reproductive health is another widely concerned issue. The ICPD Programme of Action also contains a whole chapter on this issue. According to the Programme of Action, "reproductive rights embrace certain human rights that are already recognized in national laws, international human rights document, and other relevant United Nations concensus documents. These rights rest on the

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[11] Other approaches include welfare approach, equity approach, anti-poverty approach, efficiency approach (Moser, 1990; Lim, 1991, 8-10).

recognitions of the basic right of all couples and individuals to decide freely and responsibly the number, spacing, and timing of their children and to have information and means to do so, and the right to attain the highest standard of sexual and reproductive health. It also includes the right of all to make decisions concerning reproduction free of discrimination, coercion, and violence as expressed in human rights documents" (Programme of Action, 7.3).

At the ICPD, one of the important issues discussed was whether family planning (fertility control) programmes which have been accused of violating women's rights, should be replaced with programmes that enhance women's health, education, and status – without attempting to control their fertility. An argument in favour of family planning was that "a vital step in empowering women is giving them the means to control their own fertility" (Mason, 1994, 1).

Indeed, reproductive right can improve women's life and position. Making choices about the course of one's own life asserts a person's fundamental human dignity. Thus family planning is a basic human right. The women who chooses when she has children, and how many, exerts an important measure of control over her own physical, emotional, and economic well-being. She contributes to her children's well-being, too (Population Reports, 1994, 1).

The ICPD Programme of Action defines reproductive health as "a state of complete physical, mental and social well-being and not merely the absence of disease or imfirmity, in all matters relating to the reproductive system and its function and processes" (Programme of Action, 7.2). By this definition, women and men of all ages have a reproductive health need of one kind or another. Women, however, tend to experience more reproductive health problems than men, and the diagnosis of these problems is often relatively more difficult (Mason, 1994,7). According to the World Bank, about one-third of the total women's health problems and premature death is linked to pregnancy, child birth, abortion, HIV and other reproductive tract disorders. Women are more susceptible to sextually transmitted disease (STDs) and HIV than men and can pass these on to their unborn children (Ashford, 1994, 25).) As such, the challenge for policy makers, and ultimately health-care providers, is to identify those people at greater risk of having a debilitating or life-threatening reproductive health problems, and the efficient ways of addressing them.

CONCLUDING REMARKS

Population problems remain a priority concern for many Governments in the region. Although some member countries have made notable progress in slowing birth rates, most still beset with various complex population issues, as well as their consequent deep-rooted poverty and overabundance of people. The situation is particularly disturbing in many countries in South Asia. Although fertility and mortality rates have declined in many countries, other population

problems remain. They include the elderly, women, urban growth and urban poverty, population and environment, internal and international migration, etc.

On the women's position, in most developing countries, there have been improvement in many if not all. Nevertheless, there is still gaps in women's development among countries, between subregion, in the region, i.e. the absolute conditions of women are still different from countries to countries, and from subregion to subregion. In South Asia, women's health and education improved somewhat. But indicators are still far from minimally acceptable levels – and are still very far behind from men's. Their economic position has not much improved – apparently because of their low social, economic and political participation (United Nations, 1991, 1). In much of East, Central and South-East Asia, women's levels of living improved steadily in the 1970s and 1980s. Many of the inequalities between men and women – in health, education and employment – were reduced and fertility also declined considerably. Yet, considerable economic and political inequalities persist in much of the region – because women are confined to the low paid and low status jobs and occupations and partly be cause they are represented in the decision-making process. In the developed areas such as Australia, Japan and New Zealand, women's health and education are generally good and their fertility is low. Their economic participation is about two third that of men but they are still subject to occupational segregation and wage discrimination (UN, 1991, 2).

A few emerging issues on women's position in relation to population and development process include the impact of changing age structure of a population on women's position, women-headed households, empowerment of women, and reproductive right and reproductive health. They are by no means exhaustive. The issues are submitted as a guideline for further identification of more of them as well as for reviewing national situation with a view to formulating recommendations for appropriate actions by those concerned.

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POPULATION CHANGE, WOMEN'S ROLE AND STATUS, AND DEVELOPMENT IN INDIA: EXECUTIVE SUMMARY*

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* The paper is an executive summary of a study report of India conducted during 1992-1994 under an ESCAP project on "Population Change, Women's Role and Status and Development" with financial support from the United Nations Population Fund. The assistance of Sandip Sarkar and Roli Asthana was acknowledged.

I. INTRODUCTION

For some time now there has been a recognition that the high population growth rates that continue to characterize a country such as India cannot be attributed simply to poverty or to a poor family planning programme alone. There is no guarantee that economic development, as traditionally pursued, will lead to an automatic drop in birth rates unless there is a simultaneous change in several other aspects of the quality of life that traditional measures of growth fail to capture. Similarly, an aggressive family planning programme can go only thus far. While the programme is certainly useful and necessary as a means of satisfying a growing demand for fewer children, it cannot really generate such a demand beyond a point. The actual desire for fewer children which a true demographic transition must achieve is a function of several factors which may or may not accompany conventional economic growth. One of these factors which is gaining increasing recognition is the position of the women in a society. Unless economic development also leads to an improvement in women's position, it is now hypothesized, population growth rates will take much longer to reach manageable levels. Conversely, even if economic growth is somewhat slow, if it is of the kind that changes the options and freedoms available to women, fertility and mortality declines will also be faster.

It is within such a framework that the present study has attempted to analyze the interrelationships between three sets of variables – economic development, women's role and status, and demographic change. After providing the basic features of the Indian economy, and some trends in population and measures of women's status, we have discussed at length the meaning of the term women's role and status. This has been done to clarify the relationships that exist and to develop measurable proxies of more intangible indicators of women's status. Female education, female employment and female seclusion were indicated to capture adequately women's status. Since female seclusion was well proxied by education and employment in terms of its relations with demographic change, it was not considered separately, except in the sense that regional and state level comparisons were also comparisons of different levels of female seclusion.

After a consideration of the many positive and negative ways in which economic development can and does affect women's role and status, the effects of education and employment on birth and death rates were examined by tracing the connection between the women's status variables and the proximate determinants of fertility and mortality. While some of the proximate determinants were found to be influenced in the direction of increased mortality or fertility, the balance seemed to be in the direction of lower fertility and child mortality with improvement in women's status.

Before taking up the model used for the analysis and presenting the main estimates and the simulation results, we discuss briefly the main features of Indian economy, as well as the trends in population and measures of women's status. At the end, some policy implications of the study are provided.

II. ECONOMIC-DEMOGRAPHIC PROFILE AND WOMEN'S POSITION

Structure of Indian Economy: India embarked on a path of planned industrialization from the 1950s (especially from 1956) and achieved in the initial three five year plans, a rapid industrial growth. It decelerated subsequently, and picked up again from the mid-1970s when a process of slow economic liberalization began. Looking at growth of gross domestic product (GDP) over the last 25 years, one finds that the economy has moved over time to a higher growth path. GDP growth rate rose significantly around the middle of the 1970s from a 3.2 per cent between 1962/1963 – 1974/1975 to 4.4 per cent per year between 1974/1975-1986/1987. During the 1980s, GDP grew at more than five per cent per annum. The increase in GDP is largely attributed to substantial increase in industrial growth (for 3.8 per cent per annum to 5.5 per cent per annum) and services. Agricultural growth averaged around 2.4 per cent per annum during 1962/1963-1986/1987. The GDP growth showed a sudden decline in 1991-1992, 1.2 per cent, and picked up again to 4.3 per cent each during 1992/1993 and 1993/1994 and 5.3 per cent during 1994/1995. The share of the primary sector went down from over 50 per cent in 1951/1961 to 34 per cent in 1981/1991 while that of industry and services increased from 17.5 per cent and 31.9 per cent to 27.8 per cent and 38.3 per cent respectively. The saving rates (gross) in Indian economy showed considerable increases from 21.2 per cent in 1980/1981 to 24.3 per cent in 1991/1992. During 1993/1994, it fell to 20.2 per cent. Most of the savings originated in the household sector (around 80 per cent). In India, unlike other countries, domestic savings have financed nearly 90 per cent of investment.

Private final consumption expenditure is currently around 64 per cent of the GDP at market prices declining from around 83 per cent in 1960/1961. The final consumption expenditure of the Government showed a rise, from 6.6 per cent of GDP in 1960/1961 to 11.4 per cent at present.

So far as government saving is concerned, it has shown a downward trend, and the Government has resorted to borrowing not only for investment but also to cover current expenditure. Savings of the State Governments have also fallen. Recently some decline in Central Government deficits have been observed. The decline in Central savings and worsening trend in its deficit reflects a persistant tendency for expenditure, particularly current expenditure, to grow faster than buoyant tax revenues.

The inflation level in India has remained mostly at a single digit whereas the balance of payments has started improving from mid 1991. This has been possible through a combination of macro-economic stabilization policies and structural reforms in industrial and trade.

The recent trade and exchange rate policy regime is characterized by major progress in eliminating unnecessary administrative and discretionary controls over foreign trade which are generally considered responsible for making Indian economy uncompetitive. Export performance is showing decisive improvements, and at the same time one is witnessing revival of imports to more normal levels. Also, composition of exports and imports as well as the direction of foreign trade have witnessed significant changes in recent years.

The public sector grew rapidly since independence, largely by investment in heavy industry and irrigation and also by nationalization, especially of financial institutions. The public sector has basically dominated the organized sector, but its stature is relatively modest when stood up against the economy as a whole. The performance of public sector enterprises has been somewhat uneven. Recently the Government has taken measures to undertake disinvestment in public sector undertakings and provide them greater autonomy.

So far as fiscal policy is concerned, India's fiscal policy has been conducted within the framework of resource mobilization for a high level of public investment. This was done on the assumption that public investment would be adequately supported by public savings, a presumption not realised. This is largely on account of the nature of political economy. In India price stabilization took precedence, and in turn the fiscal policy tended to destabilize industrial output. Price stabilization would have been better achieved by building higher resources of foreign exchange and food stocks when the harvest failed. This would have obviated the need to counter inflation by cutting investment. The highly expansionary fiscal policy in the intial stages contributed to an enhanced rate of growth of output but this effect could not be sustained since it required an excessive rate of growth of public debt.

India's monetary policy until recently has been very conservative; and were quick to impose monetary restriction wherever inflation threatened to go out of hand. Similar remarks are true for fiscal policy. Recent policies in regard to financial liberalization and lending rate are likely to prove beneficial to the Indian economy.

On foreign exchange, India's current situation is rather good with very substantial foreign exchange reserves. There is however the question of properly managing foreign exchange funds.

A. DEMOGRAPHIC TRENDS

According to the most recent population census, India's current population as on March 1, 1991 was 846.3 million showing an annual growth rate of 2.14 per cent during the decade 1981-91. In the previous decade (1971-81), the annual growth rate was 2.22 per cent indicating a decline in the decadal growth rate for the first time since independence. During 1981-91, Kerala and Tamil Nadu showed low annual growth rates of 1.34 per cent and 1.43 per cent respectively when compared to Rajasthan (2.50 per cent), Uttar Pradesh (2.27 per cent), Madhya Pradesh (2.38 per cent) and Bihar (2.11 per cent). These latter states constitute about 40 per cent of country's population, and the future growth pattern of India's population will be largely determined by their performance in arresting future growth of India's population. The crude birth rate (CBR) has fallen from 37 in 1971 to 34 in 1981 and to 29 in 1992. In turn if one looks at more recent figures on the total fertility rate (TFR), it has declined from 5.2 in 1972 to 4.5 in 1981 and 3.6 in 1991. The trend in the death rate has also been encouraging especially in the recent past. Crude Death Rate (CDR) fell from 15 in 1971 to 12.5 in 1981 and to 10 in 1991, with corresponding figures for the Infant Mortality Rate (IMR) being 129, 110, and 80 respectively. The 1991 Census has shown that, on the average, there were 1079 males for every 1000 females. This was 1057 in 1951, 1063 in 1961, 1075 in 1971 and 1071 in 1981.

This is a finding of great relevance to the women's status question. Not only does this continued disadvantage of women suggest a continued female disadvantage in other aspects of life such as education and employment, in turn it may also be an important explanation for the relatively slow pace of the demographic transition.

From the economic planning point of view, one needs to look also at the trends in dependency ratio. In 1991 nearly 37 per cent of India's population was in the age group 0-14 years. This proportion in the number of children under 15 years of age was however 42 per cent in 1971. Also the proportion of population above 60 years in 1971 was 6.0 per cent and grew to 6.5 per cent in 1981. It is currently estimated to be 6.8 per cent. This trend is expected to accelerate in the next decade. As far as the growth of the urban population is concerned, it has also been consistently above the population growth rate being 2.34 per cent in 1951-61, 3.21 per cent in 1961-71, 3.83 per cent in 1971-81 and 3.09 per cent in 1981-91.

B. TRENDS IN WOMEN'S STATUS

Education: At the 1991 census, the number of illiterate females continued to exceed the number of literate females (200 million versus 130 million). At the same time, sex differentials in literacy narrowed for the first time in the 1981-91

decade and the sex ratio of literates (females per 1000 males) also increased from 491 in 1981 to 564 in 1991. But almost all this narrowing was accounted for by the trend in urban areas; the sex ratio of literates in rural areas continued relatively unchanged.

But once again, there were tremendous variations of these average figures. For example, the gap between the states with the lowest and highest literacy rates (Rajasthan and Kerala) increased between 1981 and 1991 from 62 per cent to 66 per cent. Secondly, the lowest sex ratios among the literates are found in the northern states of Rajasthan (338), Bihar (392), Uttar Pradesh (394) and Madhya Pradesh (457) compared to Kerala (965) and Punjab (678). Further disaggregation will have to await census data on age specific literacy rates, before the composition of these trends can be identified.

We also do not have data yet on trends in educational attainment as opposed to simple literacy. From all accounts the relatively high dropout rate for girls continues to be a major problem even when initial enrolment rates are high.

Employment: While it is difficult to draw too many conclusions about trends in female employment because of measurement difficulties and difficulties in comparing data from different points in time, the census information can be used to make a few broad generalizations. First, while the 1991 census has recorded a net increase in the proportion of female main workers between 1981 and 1991, some parts of the country have actually registered a *decrease* in female work participation rates. In Punjab the female participation rate has declined by 1.7 per cent from an already very low level of 6.2 per cent in 1981.

Coming to changes in the kinds of work done by women, the proportion of women working as both cultivators and agricultural labourers has registered a clear increase. This rise was particularly marked in the southern states of Andhra Pradesh, Tamil Nadu and Karnataka and the northern states of Uttar Pradesh and Rajasthan. The employment of women in household industry has also increased over time, but it is not clear how much of this increase is real and how much a reflection of better counting in the 1991 census. Finally, looking at employment in the three sectors of the economy, the proportion of female workers in the primary sector has increased everywhere but in Kerala, Tamil Nadu, Maharashtra and West Bengal; the proportion in the secondary sector has declined everywhere but in Kerala and West Bengal, and the proportion in the tertiary sector has increased everywhere but in Rajasthan and West Bengal.

The overall trend everywhere seems to be an increase in the proportion of women in paid employment, though how much of this is a result of modernization and how much due to poverty related factors is not clear. The latter is particularly suggested by the clear gender differential in wage rates.

III. AN ECONOMIC-DEMOGRAPHIC MODEL

Following our analysis of the trends in economic and demographic variables including those relating to the role and status of the women, and a review of the literature, we have made an attempt to analyze the interactions among the variables relating to population change, women's role and status (WRS) and economic development in the framework of a model. For building up the model, equations have been specified and estimated econometrically using time-series data for the 1970s and 1980s (up to 1991 in some cases) and state-wise cross-sectional data for certain years in this period. To study how well the model performs, counter-factual simulation has been undertaken for the years 1982 to 1991. The model has then been used to forecast upto 2006 and simulated to bring out the interactions among various variables, especially the effect of changes in women's role and status on the demographic and economic variables.

The basic premise underlying the model is that economic and demographic variables are simultaneously determined in the course of development, and these variables influence and get influenced by women's role and status. The model has been cast in terms of real variables, and the determination of prices and related economic relationships (e.g. money supply) has not been incorporated into the model. The only set of price variables included in the model is the real wage rates. This was considered necessary for modelling the labour market (determining female participation).

The model has been formulated at a high level of aggregation. In regard to demographic and women's role and status variables, a rural-urban dichotomy is maintained in many cases. Similarly, while modelling the production side, agriculture and non-agriculture are taken as two broad sectors. The basic data sources for the model are (i) *National Accounts Statistics,* (ii) Census, (iii) National Sample Survey data and (iv) Sample Registration System data. The estimation of the equations has been done by the Ordinary Least Squares (OLS) method or methods of similar nature. In the course of developing the submodels for demographic behaviour and women's role and status, inadequate data availability often posed serious problems The specifications of the functional forms for these submodels are therefore dictated in many cases by the availability of data.

A. ECONOMIC SUBMODEL

The economic submodel determines various macro-economic variables such as production, consumption and investment, government revenue and expenditure, capital stock, labour demand and wage rate, and exports. Almost all equations have been estimated from time-series data. The economic submodel is disaggregated into two sectors: agriculture and allied, and non-agricultural sectors. Such disaggregation is made in equations for production, investment, capital stock, labour supply-demand and wage rate.

A production function is used for supply side determination. From the supply side, output is determined by capital input, labour input (incorporating labour quality improvement arising from education) and a time trend to capture technological progress.

Fixed capital stock is determined by an identity consisting of fixed capital stock of previous year and fixed investment of current year using the perpetual inventory method.

Labour supply is determined in the demographic submodel. Growth of real wage rate is determined by the gap between labour supply and labour demand. Labour demand is determined by the level of production and real wage rate.

Other relations in the submodel are as follows. Population growth affects both private consumption and government revenue expenditure. Private consumption is further affected by changes in population structure represented by the dependency ratio. The rate of fixed investment is influenced by the previous year's investment rate and by the level of demand for domestic products. The composition of fixed investment in terms of the shares of agriculture and non-agriculture sectors is determined by gross domestic product per capita reflecting the influence of increases in income levels on the pattern of expenditure. Inventory investment is determined by changes in gross domestic product. Government revenue is influenced by gross domestic product, and it influences government expenditure. Export is determined by gross national product of developed countries and effective exchange rate. The model is closed by making imports (and statistical discrepancy) as residual of the expenditure identity.

B. DEMOGRAPHIC SUBMODEL

This submodel determines the size and age-sex composition of the rural and urban population as well as certain other demographic characteristics such as literacy rate, urbanization rate and labour force participation rate. Most of the equations in this submodel have been estimated from cross-sectional data for different Indian states pooled for two or three points of time (say 1981 and 1991).

As mentioned earlier, a rural-urban dichotomy is maintained for several demographic variables. Thus, estimates are provided for demographic variables separately for rural and urban areas. This has not been done by estimating equations separately for rural and urban areas. Rather, econometric equations have been specified and estimated to explain the demographic variables at the All-India level, i.e. taking rural and urban areas together, and then, from such general estimates, separate estimates for rural and urban areas are derived.

To model fertility behaviour, an equation has been estimated to explain total fertility rate (TFR). While growth of income and industrial development are expected to have a major influence on fertility behaviour, the coefficients obtained for these variables were statistically insignificant. Thus, in the final equation chosen for TFR, these variables were not included and it has been taken as a function of female literacy rate, female workforce participation rate, female mean age at marriage, and per capita government expenditure on health and family welfare.

In the model, age-specific fertility rates (ASFRs) are derived from TFR as some earlier studies have done. We assume ASFRs to follow a truncated Pearson Curve Type III pattern. For our calculations, four parameters are specified: (1) total fertility rate, (2) mean age at child bearing (MACB), (3) relative fertility rate of women in the age group 20-24 years to those in the age group 15-19 years, and (4) relative fertility rate of women in age group 35-39 years to 40-44 years. Age-specific fertility rates are calculated for rural and urban areas separately and for all ages in the fertility period.

Female mean age at marriage (FMAM) is estimated as a function of two WRS variables, namely female literacy rate and relative female-male wage rate in agriculture. FMAM influences ASFRs in two ways: through its influence on TFR and through its influence on MACB (for which a relationship is estimated).

For mortality estimation we have used life expectancy at birth. An equation for life expectancy at birth for female has been estimated by cross-sectional regression. As in the case of TFR, urbanization and industrialization factors turned out to be insignificant in explaining life expectancy. In the final equation chosen to explain female life expectancy at birth, female literacy rate and government expenditure on health per capita were taken as an explanatory variables. Based on our study of past trends in life expectancy, we have taken male life expectancy at birth to be equal to that for females.

Besides life expectancy at birth, we make use of infant mortality rate in our calculations. It is used for calculating infant survival rate for 0-1 year age group in population projection. It has been taken as a function of female literacy rate and per capita government expenditure on health and family welfare.

Once life expectancy at birth for male and female in rural and urban areas are obtained, South Asian Model Life Table and Brass Logit System are used to estimate the survival ratios, age-sex wise for rural and urban areas separately. The single year survival ratios and age specific fertility rates are utilized to project age-sex specific population for both rural and urban areas in the next period.

To provide estimates of migration, the model estimates first the level of urbanization (taken as being determined by per capita income and proportion of

domestic product originating in agricultural to non-agricultural sector) and then it calculates net rural-urban migration as the difference between population size in urban areas consistent with rate of urbanization and natural population size obtained from previous year's natural growth of urban population.

The labour force participation rates for males are taken as exogenously determined and constant (0.864 and 0.802 for rural and urban areas respectively). Female labour force participation in rural and urban areas are treated as variables and equations for them have been estimated as a part of women's role and status submodel. Labour supply is calculated as the product of working age population, generated from population projection, and labour force participation rates.

Male literacy rate is estimated as a function of per capita income and government expenditure on education per capita. Urbanisation and industrialization factors were tried as possible explanatory variables but the results were poor. The male secondary education rate has been taken as a function of government expenditure on education and the rate of urbanization. Similar specifications have been used for female education rates as discussed later.

C. WOMEN'S ROLE AND STATUS SUBMODEL

Women's role and status in the sense of their control over material and social resources, their position in family and society and opportunities and alternatives available to them is difficult to incorporate in quantitative model estimation. Other aspects like physical seclusion and social invisibility in the context of women's status are even more difficult to quantify. Therefore, in this study, we have included only a few measurable variables. As in the case of the demographic submodel, equations for this submodel are estimated from cross-section data. The submodel determines female literacy, female participation rates and relative wage rate.

Female literacy rate (FLR) has been postulated as being determined by per capita income, government expenditure on education per capita and urbanization rate. In the equation for female secondary education rate, per capita government expenditure on education and urbanization rate have been taken as the explanatory variables.

Female labour force participation rate in rural areas has been postulated as being determined by fertility rate, wage rate of male (as a proxy for household income) and female wage rate (as a motivating factor for female participation). A somewhat different specification has been for urban female labour force participation rate; the explanatory variables chosen are per capita income reflecting the level of development, female literacy in urban areas, and mean age at marriage. Female workforce participation rate has been taken as dependent on female labour force participation rate and the general rate of unemployment.

Wage differential between female and male is an indicator of the status of women. Higher wage differential reflects lower status of women. Due to data limitations, this could be studied only for rural areas. The ratio of agricultural wages of females to males has been taken as being determined by differences in abilities (educational differential used as proxy) and female participation rates in rural areas.

D. SOME METHODOLOGICAL POINTS

It has been noted earlier that the equations in the demographic and women's role and status (WRS) submodels were mostly estimated with cross-section (or pooled time-series and cross-section) data across different states of India. The model, on the other hand, provides forecast for various variables over time at the all-India level. Some adjustment of the coefficients therefore becomes necessary. In most cases, we have adjusted only the constant term of the estimated equations as this adjustment yielded a good forecast of the time-series scenario. However, in a few cases, this procedure did not yield good forecasts. In these cases, we feel, the parameter estimates obtained from cross-sectional regression significantly overstate the effect that some of the explanatory variables would have in time-series context. It became necessary therefore to reduce slightly the coefficients of those variables so that the equation so modified would fit the time series data well. Another change we have made is to use cumulative government expenditure (over ten years) in place of the current government expenditure in the equations and adjust the coefficient of the variable suitably. It was felt that this change would make it possible to capture more satisfactorily the fact that the effect of government expenditure on female literacy, total fertility rate, infant mortality rate, etc. occur with a lag and that a level of expenditure has to be sustained over time for the effect to come about.

For solving the system of equations constituting the model, the RATS (Regression Analysis of Time Series) package has been used. To facilitate computation, we have divided the computational procedure into the following four components:

(A) Economic submodel,

(B) Demographic (excluding components C and D) and women's role and status (WRS) submodels,

(C) Estimation of ASFRs from TFR, and

(D) Population projection

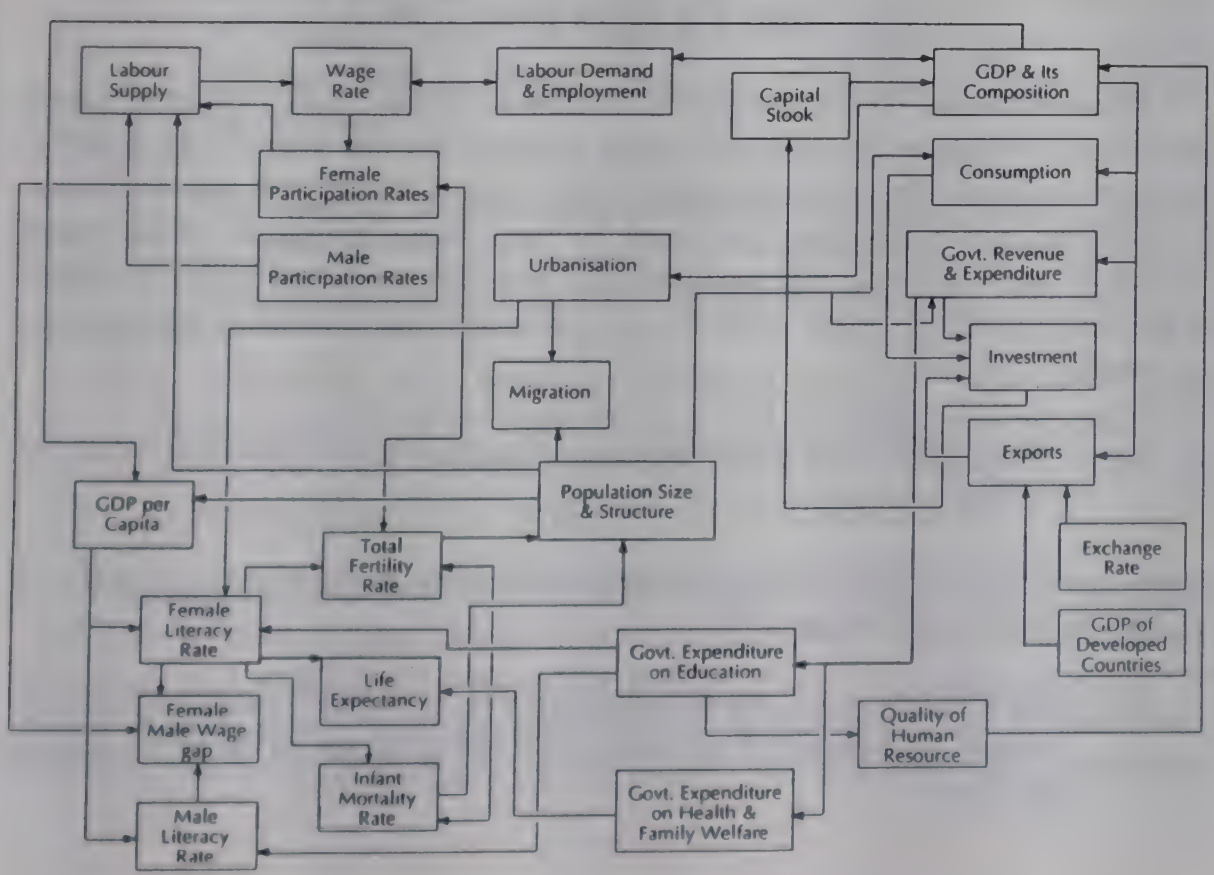
The RATS package is used to solve the components A and B. All these equations are put together and solved simultaneously. Components C and D are

computed by using a FORTRAN computer programme. To explain the process of computation further, let 1981 be the starting year of solving the system. Using TFR and various other parameter such as life expectancy, the components C and D are solved to yield population projections for 1982. Using the values of exogenous variables, including size and composition of population for 1982 and lagged values of some endogenous variables, the components A and B are then solved for 1982. The solution provides estimated total fertility rate, life expectancy and infant mortality rate. Various other parameters needed for components C and D are also provided. Given these parameters, the components C and D are solved to provide the size and structure of population for 1983. This enables us to solve the components A and B for 1983. This process is repeated to generate solution of the model for subsequent years.

IV. INTERACTION OF KEY VARIABLES IN THE MODEL

The inter-linkage among the various variables in the three submodels are depicted in figure 1. The causation from demographic variables to economic variables runs through size of population, dependency ratio and labour supply. Size of population influences both private consumption and government expenditure. Dependency ratio affects private consumption. Labour supply

Figure 1
Main Relations in the Model



affects growth of wage rate and this in turn affects the employment and, through the production function, the level of output. It is also to be noted that the secondary education rates influence the quality of human resources and thus influence output. On the other hand, all important demographic variables like life expectancy, infant mortality rate, fertility rate, literacy rate, urbanization rate etc. are determined by some of the variables in economic submodel like gross domestic product (GDP), structural change (agricultural versus non-agricultural domestic product) and government expenditures on health, family welfare and education.

Turning to the interrelationship between demographic and WRS variables, female mean age at marriage, total fertility rate, urbanization rate and literacy differentials by sex are factors which affect WRS variables. Female literacy rate is the most important variable in the WRS model influencing several demographic variables like female mean age at marriage, fertility, infant mortality and life expectancy. Female labour participation variables influences labour supply in demographic submodel. Further, female mean age at marriage is determined by female literacy rate and wage differential by sex.

As regards the interaction between economic variables and WRS variables, it is seen that gross domestic product, government expenditure on education and wage rate variables are affecting WRS variables. On the other hand, WRS variables affect the economic variables indirectly through their effect on various demographic variables.

V. SIMULATION RESULTS

Preconditions: The base year of the model is 1981. Using counter-factual simulations, the complete model has been validated for the years 1982 to 1991. For most variables the estimated figures are quite close to the observed data. The validated model has then been used for providing simulations of the future scenario of the economic, demographic and women's role and status variables for the period 1991 to 2006. For the reference run, the following assumptions were made:

1. Beyond 1993, the real effective exchange rate will remain fixed at the 1993 level.

2. The GNP of developed countries will grow at the rate of 2.7 per cent per annum beyond 1993.

3. The share of government expenditure on education, health and family welfare will remain fixed at the average proportions observed during the 1980s.

4. The variables and parameters for which trend equations were estimated will continue to follow the past trend.

5. The rate of "technological progress" in the agricultural and non-agricultural sectors will remain fixed at 1.57 and 2.48 per cent per annum, as observed during 1971-91.

It should be pointed out that the reference run is not a prediction of the future. It depicts the most likely scenario if there is no deviation from the past policies. However, the results of the reference run provide a basis for comparison with policy simulation runs.

Baseline scenarios: The highlights of the baseline scenario are as follows:

(1) Real GDP will grow at the rate of 5.6 per cent per annum between 1991 and 2006. The growth rate of GDP per capita will be 3.95 per cent per annum.

(2) Population will grow at the rate of 1.62 per cent per annum between 1991 and 2006 to reach the figure of 107.6 million by 2006.

(3) Total fertility rate will decline from 3.6 in 1991 to 2.39 in 2006.

(4) Between 1991 and 2006, life expectancy will go up from 59.5 years to 66.3 years and infant mortality will go down from 80 to 43.8.

(5) Between 1991 and 2006, male literacy rate will increase from 64.2 to 78.7, female literacy rate from 39.2 to 58.1, male secondary education rate from 9.68 to 18.04, and female secondary education rate from 3.87 to 9.69.

(6) The share of non-agriculture sector in GDP will increase from 69.4 per cent in 1991 to 78.7 per cent in 2006. During this period the urbanisation rate will go up from 25.7 per cent to 32.7 per cent.

(7) There will be a marked increase in the real wage rates in both agriculture (107 per cent between 1991 and 2006) and non-agriculture (62 per cent), and some increase in the ratio of female to male wage rate in agriculture (from 0.844 in 1991 to 0.875 in 2006).

Simulation exercises: Five policy simulation exercises have been carried out. Two of them (higher female literacy, higher female participation) show the effect of policy changes in regard to women's role and status variables; two others (higher age at marriage, faster decline in fertility) relate to demographic variables, while one (higher rate of investment) relates to economic development.

To implement the policy simulation regarding impact of raising female literacy, the constant term of the equation for female literacy rate (FLR) was increased by 3.87 (1992 onwards) to raise the all-India level of FLR to half of the level of the state of Kerala which has the highest FLR in the country.

The impact of this change in FLR may be seen from table 1 which summarises the results of simulation. Population for 2006 is lower by 1.6 per cent, per capita GDP goes up by about 2 per cent, and total fertility rate declines by over 10 per cent and reaches the level of 2.14. Female participation rate in rural areas goes up by about 7 per cent and that in urban areas by about 2.6 per

Table 1. Simulation Results, 2006

	Base run	*Higher female literacy*	*Higher female partici-pation*	*Higher age at marriage*	*Higher investment rate*	*Faster decline in fertility rate*
Gross domestic product (million R.)	485 958	487 357	489 524	485 781	532 309	486 111
(% deviation from base)		0.29	0.73	-0.04	9.54	0.03
Population (million)	1 076.4	1 058.9	1 073.1	1 034.7	1 070.7	1 066.9
(% deviation from base)		-1.63	-0.31	-3.87	-0.53	-0.88
Per capita GDP (Rupee)	4 514.66	4 602.48	4 561.77	4 694.90	4 971.60	4 556.29
(% deviation from base)		1.95	1.04	3.99	10.12	0.92
Total fertility rate	2.39	2.14	2.23	1.99	2.17	2.19
(% deviation from base)		-10.46	-6.69	-16.74	-9.21	-8.37
Life expectancy	66.3	67.5	66.4	66.8	67.5	66.4
(% deviation from base)		1.81	0.15	0.75	1.81	0.15
Female literacy rate	58.11	62.76	58.53	59.72	62.03	58.5
(% deviation from base)		8.00	0.72	2.77	6.75	0.67
Female secondary education rate	9.69	9.83	9.76	9.99	10.3	9.8
(% deviation from base)		1.44	0.72	3.10	6.30	1.14
Female participation rate – rural	307.9	328.2	440.6	352.7	317.8	316.9
(% deviation from base)		6.59	43.10	14.55	3.22	2.92
Female participation rate – urban	197.5	202.6	202.9	197.7	193.4	197.2
(% deviation from base)		2.58	2.73	0.10	-2.08	-0.15
female mean age at marraige	21.2	21.6	20.9	24.4	21.6	21.2
(% deviation from base)		1.89	-1.42	15.09	1.89	0.00
Female-male wage ratio	0.875	0.872	0.822	0.858	0.873	0.872
(% deviation from base)		-0.34	-6.06	-1.94	-0.23	-0.34
Urbanization rate	32.7	33	32.9	33.3	34.3	32.8
(% deviation from base)		0.92	0.61	1.83	4.89	0.31
Male literacy rate	78.7	79.2	79	79.9	81.6	79
(% deviation from base)		0.64	0.38	1.52	3.68	0.38

cent. Female mean age at marriage rises by 1.9 per cent. On the other hand, there is little effect on female-male wage ratio (in rural areas).

To study the effects of raising female participation rates, in the simulation exercise, the constant terms of the equations determining female participation rates were raised (1992 onwards). The increase was by 69 in the equation for rural areas and by 6 in the equation for urban areas. This raised the all-India level of the participation rates to 75 per cent level of the states having highest female participation rates.

The impact of raising female participation rates can be seen from table 1. Population is lower by 0.3 per cent compared to the base scenario. Per capita GDP goes up by about 1 per cent. Total fertility declines by about 7 per cent to reach the level of 2.23. One major effect is on the female-male wage ratio which goes down by about 6 per cent. This basically reflects the adverse effect on greater women participation in labour force on the wage rate of women. Another interesting result is that while higher female literacy causes life expectancy to go up, greater female participation does not have much impact. Also, while higher female literacy leads to higher age at marriage, greater female participation in the labour force tends to push down the age at marriage.

To implement the policy simulation in which we consider the impact of higher female age at marriage, the constant term in the relevant equation was raised (1992 onwards) by 3.12, so that the mean age at marriage at the all-India level reaches the level of Kerala which is the highest in the country.

As seen from table 1, the increase in the mean age at marriage causes a significant fall in the population size for 2006. Compared to the base run figure of 107.64 million, it goes down to 103.47 million, a decline by about 4 per cent. Interestingly, it also causes the GDP level to go down marginally. In terms of per capita GDP, there is an increase by about 4 per cent. It has a major effect on total fertility rate and makes it go down by about 17 per cent. Female literacy rate increases by 2.77 per cent, while female secondary education rate increases by 3.1 per cent. Another important result is the sharp increase in the female participation rate as a result of increase in the age at marriage. The participation rate increases by 14.55 per cent. As in the case of the previous simulation in which the female participation rate was raised, in this case also female-male wage ratio is adversely affected by increase in the mean age at marriage.

To study the effect of faster economic development on the demographic and WRS variables, a simulation exercise was carried out in which a 10 per cent increase in the rate of investment was assumed. It is seen from table 1 that higher investment rate causes a faster growth in GDP and as a result the GDP rises by 9.5 per cent compared to the base run estimate. The increase in per capita GDP is higher at over 10 per cent as higher investment rate causes a

slower growth of the population. In this scenario, significant effects are found in most variables considered in table 1. Thus, female literacy rate goes up by 6.75 per cent, female secondary education rate by 6.3 per cent, urbanisation rate by 4.89 per cent, and male literacy rate by 3.68 per cent. It is interesting to note that, while female participation rate in rural areas goes up (by about 3 per cent) as a result of higher rates of investment, that in the urban areas goes down (by about 2 per cent).

To implement the simulation in which we assume a faster decline in fertility rate, the constant term of the equation for total fertility rate was made to decline by 0.01 every year (1992 onwards). Such decline may come about by an enhanced government efforts for reducing fertility. The effect of this change is found to be small. Thus, GDP is affected only by 0.03 per cent. Also, population for 2006 is lower by only 0.9 per cent. It is only in the case of female participation rate in rural areas that there is some effect of faster decline in total fertility rate. The participation rate is higher by about 3 per cent.

VI. POLICY IMPLICATIONS

The results of the simulation exercises demonstrated clearly the importance of the women's role and status variables. On the whole, the women's role and status variables when used as parameters for policy intervention showed significant impact on both economic and demographic variables. Similarly, changes in demographic and economic variables were found to affect the women's role and status. This suggests the need to raise the status of women as a means to influence the course of economic development and demographic change. These results also indicated the sluggishness of the economy as well as the demographic and women's role and status variables to policy changes, which, in turn, underlines the need for major policy shifts for having the desired effects. This situation is, however, likely to improve with the initiation of the new economic policies since 1991.

A revealing feature of our simulation exercises has been the fact that a particular policy intervention can have both good and adverse effects on different parameters, as for instance higher female participation was found to result in a fall in the female-male wage ratio and at the same time causing a fall in the total fertility rate. This suggests the need to adopt a more pervasive approach by taking anticipatory policy measures in sectors which are likely to be so adversely affected by a particular policy changes.

POPULATION CHANGE, WOMEN'S ROLE AND STATUS, AND DEVELOPMENT IN JAPAN: EXECUTIVE SUMMARY*

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* The paper is an executive summary of a study report of Japan conducted during 1992-1994 under an ESCAP project on "Population Change, Women's Role and Status and Development" with financial support from the United Nations Population Fund.

I. INTRODUCTION

Although Japan is one of industrialized nations, its fertility decline was both the earliest to occur in the postwar period and the greatest in magnitude among them (Ogawa and Retherford, 1993a), while its longevity is at the highest level in the contemporary world (Ogawa, 1993). As a result, Japan's population aging process is unprecedentedly rapid, and is expected to accelerate towards the early part of the next century. Although Japan's current level of population aging is not yet as advanced as in many of the Western industrialized nations, within the next few decades it is likely to be even higher than the current levels of those nations. In addition, the Japanese societal structure and family organization are substantially different from those of other developed nations (Hodge and Ogawa, 1991; Ogawa and Retherford, 1993b). For these reasons, Japan's process of adjustment to its age structural shifts is likely to encounter a wide range of problems, both serious and unique, in allocating the support resources for a rapidly growing number of the elderly population.

One of the most important support resources for the elderly is provided by middle-aged women. The responsibility of looking after frail elderly parents at home primarily rests upon the middle-aged adult children, usually daughters-in-law or daughters. However, recent Japanese evidence suggests that these primary caregivers suffer from a number of serious difficulties, including adverse effects on their earnings and career development (Ogawa and Ermisch, 1995). Moreover, a number of recent studies have demonstrated that women's career development is closely related to fertility changes (Ogawa and Mason, 1986; Ogawa and Retherford, 1993a).

In this summary report, we will discuss, on the basis of a macroeconomic-demographic-social security model, various population compositional adjustment problems, shedding light upon the changing status of Japanese women and their career development.

II. POPULATION CHANGE AND ECONOMIC DEVELOPMENT IN POST WAR JAPAN

The story of Japan's miraculous postwar economic success has been told many times (Hodge and Ogawa, 1991). No less striking, however, was the unprecedented rapidity with which Japan completed its demographic transition. Following this short postwar baby boom, Japan's fertility declined markedly. During the period 1947-1957, the total fertility rate (TFR) declined by more than half, from 4.54 to 2.04 children per woman. Although there were only minor fluctuations around the replacement until the first oil crisis of 1973, TFR started to fall again to 1.46 in 1993.

As fertility fell during the postwar period, mortality also declined (Hodge and Ogawa, 1991). Over the period 1948-1965, life expectancy at birth rose from 55.6 to 67.7 years for males and from 59.4 to 73.0 years for females. In 1993, it was 76.3 years for the former and 82.5 years for the latter; both levels are the highest in the world.

As a consequence of both dramatic declines of fertility and remarkable improvements of mortality, the population of Japan has been aging at an extremely fast rate in the last few decades. The proportion of those aged 65 and over increased continuously from 4.9 per cent in 1950 to 7.1 per cent in 1970, and to 12.1 per cent in 1990. These intertemporal changes show that the growth rate of this proportion has been accelerating in recent years, and that Japan is presently in the process of a secular shift in aging from a lower aging plateau to a higher aging plateau.

Japan's postwar demographic changes have occurred in parallel with spectacular economic growth. At the close of World War II, the Japanese economy was severely crippled, but its productive capacity had recovered to the prewar level by the end of the 1950s. During the 1960s, Japan's real GNP grew at a phenomenal rate of about 11 per cent per annum; this rapid economic growth was facilitated by such factors as the use of abundant high-quality labour, the borrowing of advanced technology from developed countries, and a favourable international trade market (Ogawa, Jones, and Williamson, 1993).

However, since the oil crisis in 1973, which triggered a series of the restructuring adjustments of the Japanese economy, its growth performance has been much less impressive than that for the 1960s. In the face of this major change in its growth performance, Japan's average annual growth rate of real GNP for the 1980s was 4.2 per cent – still considerably higher than the figures for many other industrialized nations. Since the early 1990s, however, the corresponding rate declined substantially. Between 1991 and 1993, the average annual real GNP growth rate was only 0.1 per cent, which is one of the lowest values among the industrialized nations.

In addition, the Japanese yen has appreciated substantially in the last several years against the world's major currencies, particularly against the US dollars. GNP per capita increased from US$458 to US$28,190 in 1992 (World Bank, 1994). At present, although the size of Japan's population corresponds to 2.4 per cent of the world population, the country produces approximately 15 per cent of the world's total output.

With the aging of its population, coupled with the restructuring of its economy and the strength of the yen, relative factor prices have been changing and labour costs have been rising fast in Japan, thus affecting the allocative pattern of productive resources in virtually all the industrial sectors. In response

to the need for cheap labour, overseas production has become increasingly important. Since labour-intensive industries such as construction and services are now faced with serious labour shortage, a growing number of foreign workers, both legal and illegal, have been recruited in the recent past (Ogawa, Jones, and Williamson, 1993).

III. FAMILY ORGANIZATION, GENDER ROLES, AND WOMEN'S LABOUR MARKET

Household structure has changed in the direction of relatively fewer stem households and relatively more nuclear households. Between 1960 and 1990, the proportion of the elderly aged 65 and over living with their children fell from 87 to 50 per cent, a level still much higher than in other advanced industrial countries (Ogawa and Retherford, 1993b). According to one international comparative survey conducted in 1990, the proportion of the elderly living in three-generation households was less than 1 per cent in England, slightly more than 1 per cent in the United States, 3 per cent in Germany, but 32 per cent in Japan. These comparative data indicate that changes in coresidence patterns in Japan have lagged behind changes in underlying socio-economic and demographic conditions (Retherford, Ogawa, and Sakamoto, 1995).

In contemporary Japan, among married couples of childbearing age (16-49), more than 80 per cent of multigenerational households are the "patrilocal" type: a couple takes up residence with the husband's parents. A possible advantage of intergenerational household extension is that it facilitates the participation of middle-aged women in the labour force, because an aged parent (s) plays the role of a built-in child care system, but it also may entail care of elderly parents-in-law and it could increase the financial burden on the younger couple.

As documented elsewhere (Kendig, 1989; Ogawa, 1993), deep-rooted Confucian teaching of filial piety is primarily responsible for Japan's high incidence of multigenerational living arrangements. Although revisions of the Civil Code in 1948, which closely followed the conjugal family system in the West, removed the predominant legal power of elderly family heads, Japan's traditional family values and practices are still widely prevalent in various social aspects, such as providing care for the elderly (Ogawa and Retherford, 1993b).

As a consequence of the interaction between these traditions and an absence of a government policy for support of the elderly, Japan's current level of institutional care for the elderly is much lower than that for other industrialized nations (Martin, 1989). The living arrangements of the elderly are, therefore, closely associated with the practices of family support in Japan, and the middle-aged adult children (usually daughters or daughters-in-law) coresiding with their aged parents are primary caregivers. The middle-aged women providing in-

home care to their elderly parents often encounter a variety of serious difficulties in the former's career development.

As has been widely observed in most industrialized countries, Japan's male labour force participation rate fell almost continuously, from 84.8 per cent in 1960 to 77.8 per cent in 1994. By way of contrast, the time path of Japanese female labour force participation differs considerably from that of many of the other developed nations. In most industrialized nations, the female labour force participation rate has risen sharply during the past two decades or so. In Japan, however, the overall female labour force participation rate has shown no sharp or consistent rise in recent decades. In 1960, the female labour force participation rate stood at 54.5 per cent; in 1994, it was actually lower at 50.2 per cent. In the interim, it followed a U-shaped pattern, falling through the mid-1970s before rising again.

In Japan, as in most other advanced societies, there has been a rise in the proportion of women who enter paid employment. Shimada and Higuchi (1985) claim that this rise has been the most rapid in the recorded experiences of advanced economies. Among married women aged 15-49, the proportion working as paid employees rose from 22.6 per cent in 1972 to 45.0 in 1994. This rise has been offset by declines in the proportion of married women participating in the labour force as family workers. This proportion fell from 17.5 per cent in 1972 to 7.1 in 1994. The fact that a considerable number of Japanese women continue to remain employed in the traditional sector sets Japan apart from the industrialized nations of North America and Western Europe.

The shifts in employment status among married Japanese women described above have occurred in parallel with a secular improvement in women's educational attainment (Nakata and Mosk, 1987). The time-series data collected by the Ministry of Education (1995) show that the sex differential in enrollment in universities has been narrowing rapidly in recent years. In 1970, 27.3 per cent of men of the relevant age enrolled in university, and 6.5 per cent of women. In 1994, however, the enrollment rate of women had risen to 21.0 per cent, compared to 38.9 per cent of men. Combining university and junior college enrollment, women's enrollment rate exceeded that of men by a slight margin, 40.9 and 45.9 per cent, respectively.

The tax and social security system has contributed to the growth in part-time employment. Data gathered in nationwide surveys conducted in the early 1990s show that approximately 70 per cent of married women of reproductive age in part-time jobs earn less than one million yen a year, which corresponds to the income tax threshold, modified in 1990 (Ogawa and Retherford, 1993a; Retherford, Ogawa, and Sakamoto, 1995). Those who earn more than this must lose their dependant status in their husbands' payroll and social security plans. In response to inflation and labour shortages, however, these tax rules have

frequently been revised upward to encourage part-time employees to work more hours per year. Prospective changes in the proportion of female employees in full-time jobs will depend partly upon the extent to which the tax rules are revised in the future.

The wages of women in Japan, as in other advanced economies, are considerably less than those received by male workers. Part of the sex differential in wages can be attributed to sex differentials in work experience, and partly to the relatively high incidence of part-time employment among married Japanese women. It should be noted, however, that as a result of the smaller gender differential in educational attainment, the sex differential in wages for full-time paid employees has been gradually narrowing over the past two decades. Wage data compiled by the Ministry of Labour (various years) show that the ratio of women's to men's hourly wage for full-time paid employees has risen from 0.55 in 1970 to 0.63 in 1993. More importantly, this upward trend has been accelerated since the implementation of the Equal Employment Opportunity Law in 1986.

Owing to these numerous developments in the female labour market, the age profile of Japanese women's participation in productive activities has been changing substantially over the past few years. It is more distinctively M-shaped for 1994 than for 1965. The persistence of the M-shaped age profile of female labour force participation is partly due to the fact that Japanese women usually retire upon marriage or upon giving birth (Ogawa and Retherford, 1993a). At present, Japan is only one of the few industrialized nations having the M-shaped age profile.

Although the socio-economic status of Japanese women has recently been improving to an appreciable extent through their increased participation in the labour force, their status is still considerably lower than that of their counterparts in other industrialized nations. According to the 1994 Human Development Report published by the United Nations Development Programme (1994), Japan has been ranked as the third best country in the overall level of human development (measured in terms of national income, adult literacy, and life expectancy) among 24 developed and 19 developing countries. However, once male-female disparities in several basic human indicators are taken into account, Japan slips down the list from 3rd to 19th.

IV. EVOLUTION OF THE SOCIAL SECURITY SYSTEM

Over the past few decades, the provision of income and other security for elderly persons through the social security system has improved to a pronounced degree. During 1970-1992, the total amount of social security benefits paid out increased by more than 15 times in nominal terms (Social Insurance Agency, 1995). In 1970, these social security benefits corresponded to 5.8 per cent of

national income, but grew to 15.0 per cent in 1992. By international standards, however, Japan's current social security expenditure is considered to be at a low level (Martin, 1989).

In response to the increase in the benefits paid out, the ratio of social security contributions to national income also went up considerably over the same period. The growing difference between benefits and contributions has been covered primarily by resources from government general revenues. It should be noted, however, that faced with slower economic growth and fast population aging, the Japanese Government, like the governments of other industrialized countries, has recently been making a series of modifications of various social security programmes to increase revenues and limit expenditures (Social Insurance Agency, 1995).

Both old-age pension schemes and medical care plans constitute the core of the social security system in Japan. The share of these two components in the total social security payment has changed substantially over time. In 1970, 58.9 per cent of total social security expenditure was allocated for medical care benefits, and 24.3 per cent for pension benefits. In 1992, it was 38.6 per cent for medical care benefits and 51.3 per cent for pension benefits (Social Insurance Agency, 1995). This intertemporal shift of the allocation of the social security payment is attributable mainly to the maturation of old-age pension schemes and partly to several major changes introduced into medical care plans.

In Japan, both public pension schemes and medical care plans have evolved on the basis of occupational groups. As regards the former, there are currently six different public pension insurance schemes in operation. Among these six schemes, Employees' Pension Scheme (EPS) and the National Pension Scheme (NPS) cover approximately 90 per cent of the work force. The remaining 10 per cent of workers belong to four different Mutual Aid Association Schemes (MAAS).

In the case of the medical care plans, unlike in the United States of America where market forces are stressed in the development and allocation of health resources, the Government assumes responsibility for providing medical care services through its social insurance system (Ogawa, 1993). The existing public medical care insurance system, which has been of a universal nature since 1961, consists of five different plans for the same reasons as in the case of the public pension schemes. Among these five plans, the Association-managed Health Insurance Plan (AHIP), the Government-managed Health Insurance Plan (GHIP), and the National Health Insurance Plan (NHIP) are the three major ones, covering 87 per cent of the population. Employees of large-scale enterprises are enrolled in AHIP, and those of small- or medium-sized businesses in GHIP. NHIP is the community health insurance for those not covered by any other public medical insurance plans.

V. MODEL BUILDING

In the early 1980s, the Nihon University Population Research Institute (NUPRI) developed a long-term simulation model (hereafter referred to as the NUPRI model). Since then, the NUPRI model has been continuously expanded and updated. In May 1995, the most recent version of the NUPRI model was completed as part of ESCAP's project on the status of women. In this long-term simulation model, the following three submodels are included: (i) population submodel, (ii) economic submodel, and (iii) social security submodel. These three submodels are interdependent, as shown in figure 1. The population submodel is first determined by a set of economic and social security variables with a one-year lag, and the variables in both economic and social security submodels are simultaneously determined, using the computed demographic variables. The model contains approximately 3,000 variables. Most of the parameters have been estimated by ordinary least squares (OLS) on the basis of annual time-series data over the period 1963-1990. In some cases, however, the parameters have been estimated by 2-stage least squares (2SLS).

Framework of the Population Submodel

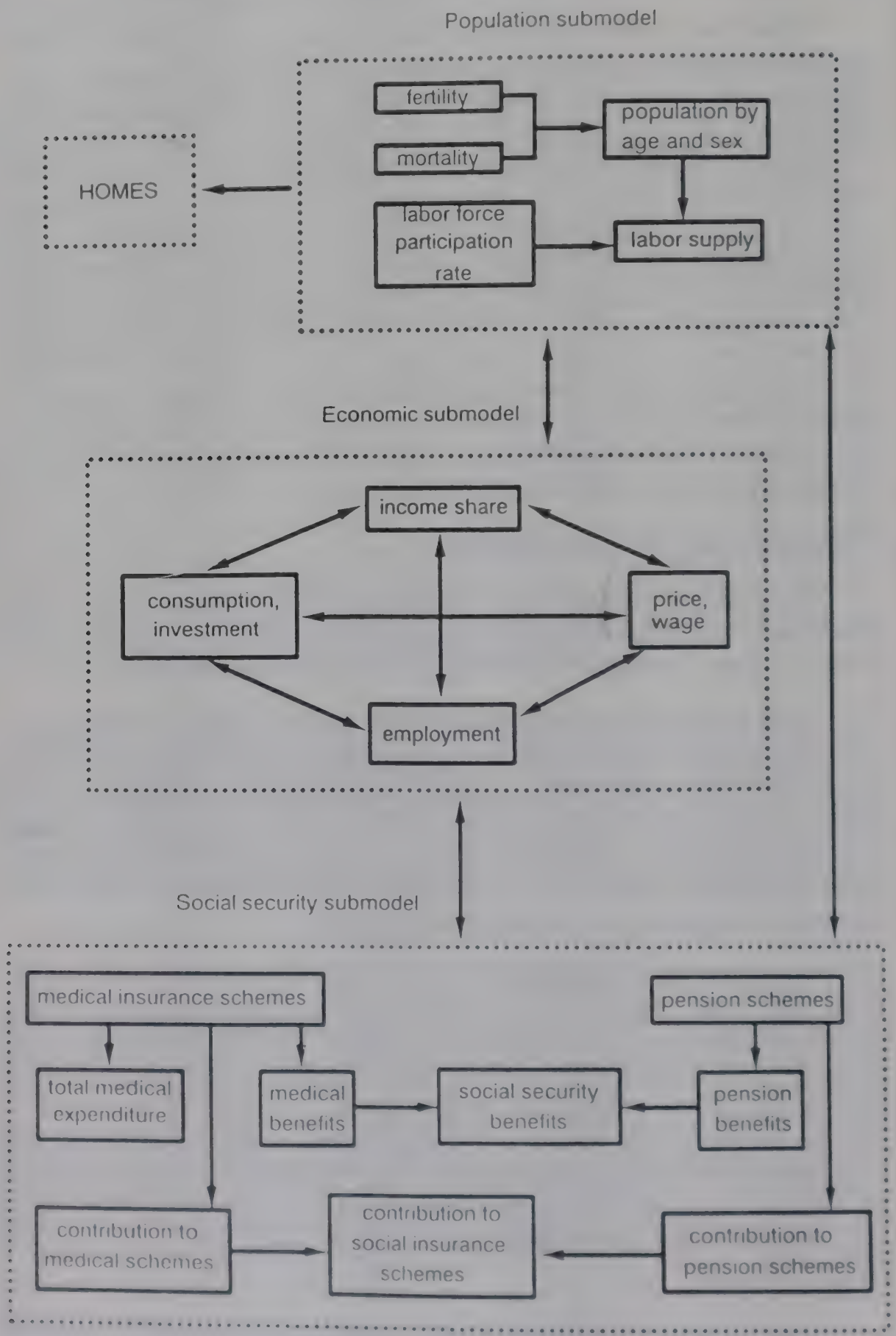
In the demographic submodel, both fertility and mortality are endogenously determined. The fertility level for each year is estimated from a fertility model of the new home economics (Ogawa and Mason, 1986; Butz and Ward, 1979).

As to mortality, the expectation of life at birth for each sex is computed as a function of the one-year lagged per capita total government medical expenditure measured in real terms. In this equation, the explanatory variable is expected largely to be a function of the prevalent level of medical technological progress. It is also important to note that to keep predicted values within a reasonable range, the equation of life expectancy at birth for each sex has been estimated on the basis of a logistic curve with an imposed ceiling.

The labour force participation rates (LFPRs) are estimated by age and sex. In the case of the youngest age group (15-24) for men, the male enrollment rate for tertiary education is an explanatory variable. For the corresponding age group for women, the female enrollment rate for junior colleges and universities and the age-specific fertility rate for this age group (lagged by one year) are employed as explanatory variables. It should be noted that in view of simultaneity existing between fertility and female labour force participation, we have estimated the equation, using 2SLS. For men aged 25-59, the labour force participation was assumed to remain unchanged at a 96.9-per cent level throughout the projection period.

More than half of middle-aged female workers are part-time workers (Ogawa and Retherford, 1993a), and many of these workers withdraw from the labour

Figure 1. Interrelationship among Three Submodels



force upon marriage or upon giving birth (Retherford, Ogawa, and Sakamoto, 1995). Moreover, their labour force participation is often affected seriously, depending upon economic growth performance (Ogawa and Hodge, 1994). For these reasons, the labour force participation rates for the age groups (25-44 and 45-54) have been computed from regression equations with their age-specific fertility rates and the real GNP per capita growth rate (with a one-year time lag).

More importantly, some of the middle-aged female workers are likely to be required to withdraw from the labour force in order to look after their frail elderly parents being bedridden or suffering from senile dementia at home. However, there exists no time-series data pertaining to the age-specific proportion of women providing in-home care to the frail elderly parents. For this reason, we were compelled to estimate the necessary data in order to incorporate this effect in the female labour force participation equations.

For males at ages 60 and over, the labour force participation rate is explained by two factors. One of the determinants, which is the level of the public pension benefit, is expected to be negatively related to the labour force participation rate for elderly men. This mechanism is based upon the hypothesis that improved public pension benefits would induce earlier retirement from the labour force (Ogawa and Clark, 1993). The other determinant is a variable representing the age structural change of this age group.

In the case of elderly women, the specification is somewhat different from that for their male counterparts. The labour force participation rate for women aged 55 and over is subject to changes in the age composition of this age group and in the proportion of those with the self-employed status to a total of those engaged in productive activities. One should recall that one of the principal reasons for Japan having an exceptionally high labour force participation level of aged persons (as compared to other industrialized countries) is that most of the female workers in this age group have this employment status.

It should also be noted that the projected results produced in the population submodel are injected into the household projection programme called "HOMES" (Mason, Ogawa, and Fukui, 1992). Most of the household projection models currently available provide information on the number of households and on the age and sex of household heads. These models, however, do not treat the living arrangements of other members of the population in a comprehensive fashion.

HOMES employs a unique methodology to determine the entire household membership in a way consistent with underlying mortality and fertility trends. Information to be generated by HOMES includes (i) numbers of households, (ii) age and sex of household heads, (iii) single-head households, (iv) one-person households, (v) average household size, (vi) sex and age distribution of household

members, (vii) number of children and grandchildren, and (viii) number of parents. If mortality among the elderly declines, for example, HOMES accounts for the impact on the number of households headed by elderly persons, the number of elderly persons living alone, and the number of persons living in households headed by their offspring.

Outline of the Economic Submodel

In the NUPRI model, the economic submodel is basically of a Keynesian demand-oriented nature. Although most of the long-run models developed so far are of the supply-oriented type with constant prices, we have chosen the demand-oriented approach with both market and constant prices incorporated primarily because many variables (particularly, public pension-related variables) built in the social security submodel are expressed in nominal terms.

In addition, although an attempt was made to build a system in which both prices and wages would change to equate the demand and supply sides, the adjustment mechanisms estimated from time-series data were not powerful enough to solve the system for each year of the simulation period. It should be stressed, however, that for each simulation year, the potential GNP is computed and, then, checked against the demand-based GNP. If the latter exceeds the former, both price- and wage-adjustment mechanisms are set in operation to reduce the latter.

In the economic submodel, population changes affect various economic variables. For instance, the personal consumption equation includes population size adjusted by the age composition (EAC).

In the economic submodel, a number of other key equations were estimated. They include (i) the private business investment equation, (ii) the corporate income equation, (iii) the dividend equation, (iv) the hours worked equation, (v) the unemployment equation, (vi) the housing investment equation, (vii) the depreciation equation, (viii) the private business inventory equation, (ix) various deflator equations, (x) wage equation, and so on. It should be emphasized, however, that although the trade component is extremely important for Japan, both exports and imports are exogenously determined on the basis of findings from some of the major econometric studies conducted in recent Japan.

At a final stage of developing the economic submodel, we undertook a final test to check to what extent the economic submodel could trace the actual course of the Japanese economy after the first oil crisis of 1973. The computed results (relevant tables omitted) were quite satisfactory. As regards real GNP, for instance, there was only a 1.6 per cent difference between observed and predicted values over the period of 1974-1990.

Description of the Social Security Submodel

Japan's social security system consists of such programmes as (i) public assistance, (ii) welfare services, (iii) social insurance schemes in the field of medical care, pensions, child allowances, unemployment, and workers' accident compensation, and (iv) public health. Among these programmes, as mentioned in Section III, both pension insurance and medical insurance schemes are the most important in terms of the magnitude of the likely impact of population aging on the social security system. For this reason, two major pension schemes and three leading medical care schemes have been modeled in the social security block.

Because of numerous rules and formulas involved in the determination of benefits and contributions in these social security programmes, there are only a few behavioral equations in the social security submodel. This submodel consists of hundreds of definitions and identities which are needed primarily for accounting purposes. This is particularly the case for the public pension schemes.

VI. SELECTED SIMULATION RESULTS

The base population used for future projections was obtained from the 1990 Population Census. Although international labour migration has recently become fairly important in Japan, it is still prohibited in principle, so that it has been excluded from population projections.

Demographic Results

Table 1 displays projected demographic results. Japan's total population, which was 123.6 million in 1990, is projected to increase to 128.1 million by 2006. After reaching this peak, the nation's population is expected to decrease continuously to a level of 119.1 million by 2025. Throughout the projected period, TFR oscillates only within a small range; the lowest value is 1.425 in 2025, while the highest one is 1.540 for 1990. The male life expectancy at birth is projected to improve continuously, thus reaching 79.20 years in 2025. Similarly, the female life expectancy at birth is expected to grow to 85.89 years in the year 2025. It should be noted that the mortality differential between men and women slightly increases over time.

A few points of interest emerge with regard to the age compositional changes shown in table 2. In 1990, the proportion of the population at the youngest age group 0-14 is 18.2 per cent, and the proportion of the population at the oldest ages 65 and over is 12.1 per cent. Although the former shrinks continuously, the latter is on the upward trend throughout the period of projection. It should be observed that in the year 1998 the size of the oldest age group begins to exceed that of the youngest, as presented by the index of aging in table 2.

Table 1. NUPRI Population projection: 1990-2025

Year	*Total population (million)*	*Total fertility rate*	*Male life expectancy at birth (years)*	*Female life expectancy at birth (years)*
1990	123.61	1.540	76.03	82.07
1995	125.34	1.469	76.94	83.08
2000	127.08	1.472	77.70	83.98
2005	128.08	1.486	78.24	84.65
2010	127.70	1.490	78.60	85.10
2015	125.84	1.477	78.85	85.43
2020	122.82	1.452	79.06	85.70
2025	119.15	1.425	79.20	85.89

Table 2. Age compositional shift of the Japanese population: 1950-1990

Year	*Proportion 0-14 (per cent)*	*Proportion 65 and over (per cent)*	*Index of aging*	*Total dependency ratio*
1950	35.4	4.9	13.9	67.7
1955	33.4	5.3	15.9	63.3
1960	30.2	5.7	19.0	55.9
1965	25.7	6.3	24.4	47.1
1970	24.0	7.1	29.4	45.1
1975	24.3	7.9	32.6	47.6
1980	23.5	9.1	38.7	48.4
1985	21.5	10.3	47.9	46.7
1990	18.2	12.1	66.2	43.5

Source: Statistics Bureau. Various years. *Population Census of Japan.* Japan Statistical Association.

Secondly, although the proportion of those aged 65 and over presently is considerably smaller than most of the population in other industrialized nations, Japan's population is likely to become the world's oldest-known population in the early part of the next century. More importantly, the Japanese population will reach the world's highest level of aging at an unprecedented rate. Compared with such European countries as Sweden and Germany, Japan will age at a tempo about three times as fast.

Thirdly, the aging of the aged population itself deserves special attention. As shown in table 2, the proportion of those aged 75 and over in the population

aged 65 and over grows rapidly after the turn of the century. It is projected to rise from 39.9 per cent in 2000 to 56.6 per cent in 2025. A close examination of this projected result and country-specific data produced from the recent population projection prepared by United Nations (1995) reveals that Japan's level for 2025 is likely to be by far the highest in the world, followed by Sweden (51.1 per cent). Obviously, this marked age compositional shift of the Japanese population will generate a substantial effect on the pattern and level of demand for medical care services at both hospitals and homes, which has serious implications with regard to the status of Japanese women.

Fourthly, it should be noticed that the total dependency ratio is relatively low until the turn of the century, as indicated in table 2. In 1992, the index of total dependency is 43.3, which is the lowest in the history of Japan. Moreover, it is also one of the lowest levels in the contemporary developed world (United Nations, 1995). In the next century, however, the index is expected to increase continuously, thus reaching its peak value of 65.0 in 2025, which will be the highest among all the industrialized nations at that time. In view of these projected results, appropriate policies should be formulated before the end of this century to cope with the negative effects of the anticipated acceleration in population aging.

Fifthly, familial support ratios, which relate the population at ages 45-49 to those aged 65-79 and enable us to assess the number of adult children in terms of a single generation of parents who would have borne them at ages 15-34 (Myers, 1992), are expected to decline by 50 per cent from 0.76 in 1990 to 0.38 in 2010. These projected results indicate that the demographic potential of familial support by adult children for the elderly diminishes rapidly, starting from the turn of the century when a large age cohort glut of baby boomers disappears from the age group 45-49. It is also important to observe that in the early part of the next century, Japan's demographic potential of familial support by adult children is likely to be the lowest in the world.

These pronounced age compositional shifts are closely reflected in the future course of Japanese households. A recent application of a new household projection technique called "HOMES" to Japan has yielded a number of interesting results (Mason, 1987; Mason, Ogawa and Fukui, 1992). For instance, the average household size will continue to drop from 3.1 members per household in 1990 to 2.6 in 2025. Households headed by the elderly will increase at a very rapid pace, especially those with a head aged 75 or older. By 2025, nearly one in five households will have a head that old, as compared with only 4 per cent in 1990. Moreover, in 1990, almost three quarters of all households are intact households where a husband and wife are present. This percentage of intact households declines steadily so that, by 2025, two-thirds of all households are intact; the remaining one-third consists of non-intact households. Thus, an increasing number

of households will face the special pressures that bear on households which do not have the benefit of both a husband and wife present.

Feminization of the Elderly Population and Increasing Needs for In-Home Care by Middle-Aged Women

Figure 2 displays intertemporal changes in the shape of the population pyramid from 1990 to 2025. A brief comparison of these three population pyramids reveals that as a result of the continuing sexual mortality differentials in favor of women, the dominance of women is likely to become increasingly pronounced with the passage of time. In 1990, the number of women aged 65 and over exceeds that of elderly men by 2.9 million. The discrepancy is projected to increase to 3.3 million in 2000, and to 4.6 million in 2025. Moreover, the relative surplus of women is particularly large at older ages (e.g., 85 and over), at which the incidence of suffering from senile dementia or being bedridden is markedly high.

More importantly, in view of the wide prevalence of the universal marriage pattern among older cohorts, the feminization of the elderly population implies that the number of widows will grow substantially in the years to come. Because of declining family support by adult children, as discussed earlier, the increase in elderly widows is very likely to lead to a considerable rise in the demand for institutional care in the years ahead.

Furthermore, a considerable proportion of elderly women is projected to live alone. Figure 3 presents the proportion of the elderly at ages 65 and over who form one-person households. The proportion of women at ages 65 and over living alone is projected to rise from 14.7 per cent in 1990 to 21.8 per cent in 2025. These projected levels for elderly women are much higher than those for their male counterparts.

As the population aging process advances, elderly patients who need intensive nursing are expected to increase at an alarming rate. In the NUPRI model, the number of those aged 65 and over who are bedridden, or suffer from senile dementia, has been estimated for the next 35 years, by assuming the age-sex-specific pattern of the incidence of being each type of patient to remain unchanged throughout the projected period. The number of bedridden patients, either at home or at medical institutions, will grow by 2.8 times, i.e., from 0.81 million in 1990 to 2.29 million in 2025. The total number of senile dementia cases will increase by 3.2 times from 1.00 to 3.22 million during the corresponding period.

A substantial proportion of these elderly patients has been and will be looked after at home by adult children, particularly non-working middle-aged women. With this family support pattern borne in mind, we have projected the

Figure 2. Population Pyramid in Three Selected Years

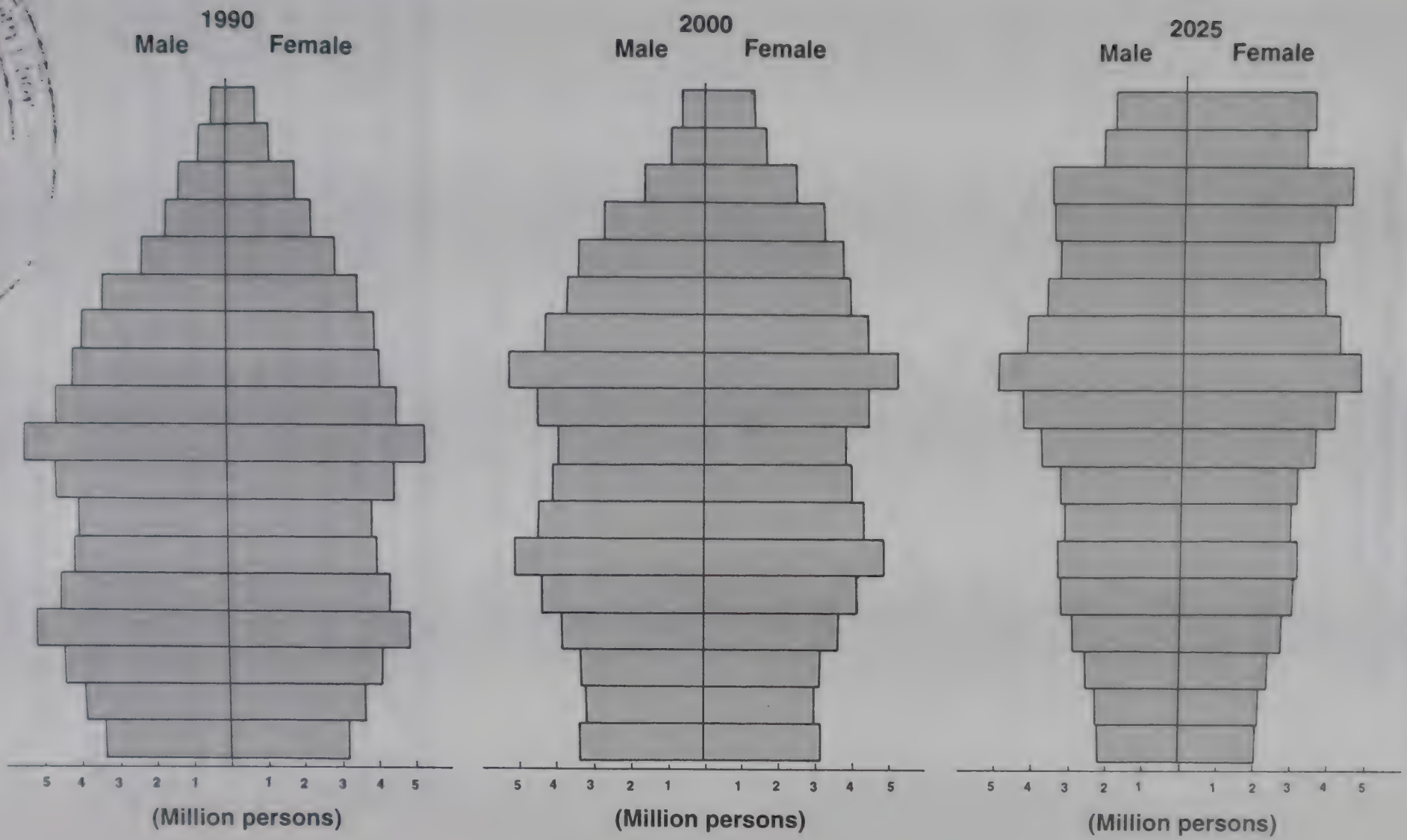


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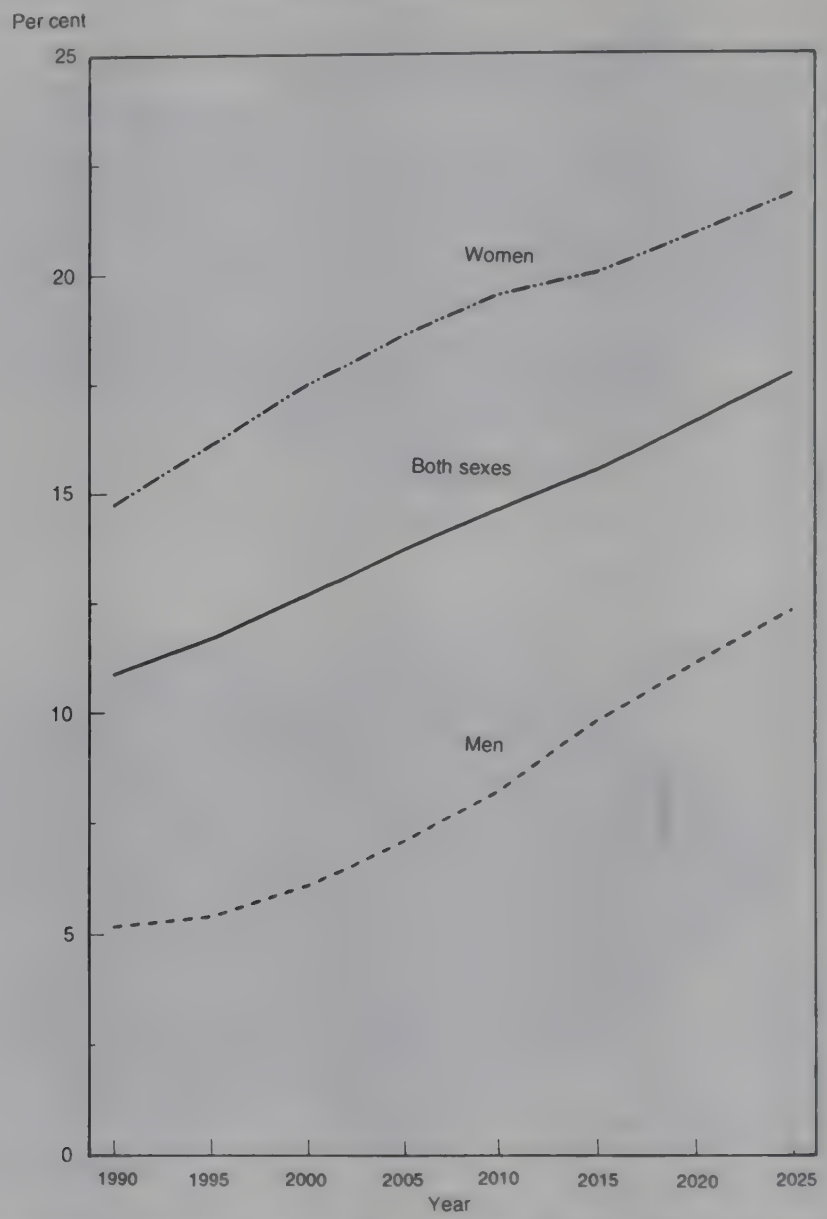
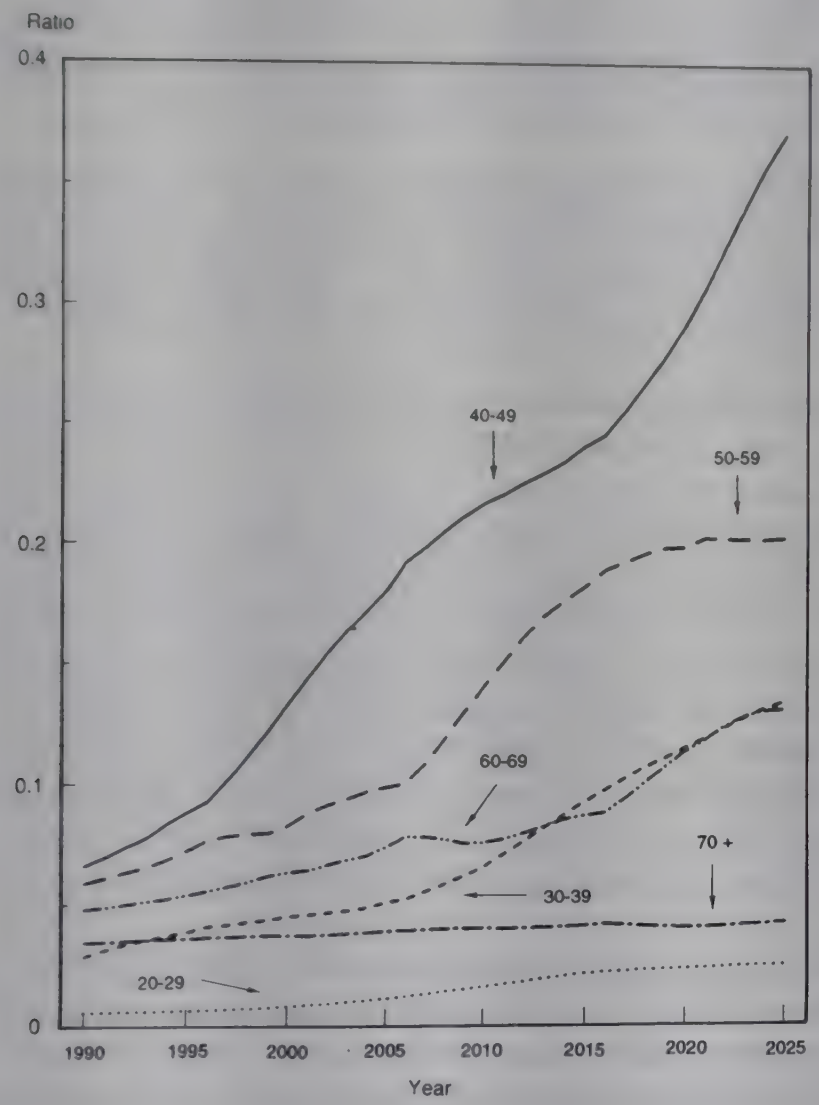
Figure 3. Proportion of Elderly Persons Aged 65+ Living Alone: 1990-2025



ratio of the elderly patients at home to women at various ages outside the labour force. As can be seen by inspecting figure 4, the ratios of the aged population at home suffering from senile dementia or being bedridden to women outside the labour force grow over time for all age groups. It can also be noted that although the differences in the ratios among these age groups are very small in the early years, they expand markedly over time. Furthermore, non-working women in their 40s consistently show the highest ratio throughout the projection period. Approximately one out of every 15 women aged 40-49 assumes responsibility for taking care of one infirm elderly person at home in 1990, but 37 per cent of the non-working women of this age group is likely to provide in-home care to elderly patients in 2025.

The above computational results point to a dramatic rise in the burden placed upon middle-aged Japanese women providing in-home nursing for the

Figure 4. Change in the Ratio of the Aged Population Suffering from Senile Dementia or Being Bedridden to Non-working Women at Various Ages: 1990-2025



frail elderly. These results are likely to change drastically, depending upon the future availability of both (i) public support services through the social security programmes such as the Golden Plan and its subsequent plans beyond the year 2000, and (ii) long-term care institutions. The degree to which care for the elderly patients is internalized through Japan's traditional familial support network is also contingent upon the magnitude of the future demand for female labour force, and upon the commitment of future cohorts of women to care for elderly kin with serious infirmity or illness at home. In view of the financial constraints on the part of the Government, the recent trend for female paid employment (Ogawa and Clark, 1995), and the rapid filial normative shift (Ogawa and Retherford, 1993b), the financial and manpower outlook for providing care to Japanese frail elderly is rather gloomy.

Besides the population projection, The NUPRI model has yielded a projection of a host of macroeconomic and social security-related variables over the period 1990-2025. Among these variables, we have selected, as shown in tables 3 and 4, several key variables with a view to discussing some of the major impacts of population aging upon the socio-economic system in Japan.

Although real GNP is projected to increase by 1.8 times over the 35-year period, its annual growth rate slows down over time from 3.2 per cent in the 1990s to 0.7 per cent during 2015-2025. It should be emphasized that the supply-side constraints begin to set in motion from the late 1990s.

One of the principal sources of such declining economic growth is related to the labour side. It is the first time in modern Japanese history that labour supply is expected to decrease after it reaches its peak value of 68.1 million in the year 2000. This negative growth of labour supply is induced by such factors as (i) a marked decrease in the number of new entrants due to sustained low fertility and to a further rise in educational enrollment at the tertiary level, and (ii) a continuous fall in the labour force participation rate of the elderly through an increase in the per capita pension benefit as well as reduced employment opportunities in the primary industry where many elderly workers are engaged. Although the labour force participation rate for middle-aged women is projected to rise considerably over the next 35 years, this positive effect is not large enough to offset the numerous negative effects on labour force growth.

It should also be noted that annual hours worked per worker are projected to diminish by only 6 per cent during the 35 years owing to a gradual rise in real wages. If the Government's goal to shorten the average annual working hours per worker to 1,800 hours, as discussed earlier, is successfully achieved by 1997, the total amount of effective labour supply will decrease at a faster rate than that computed from the model.

These projected results for labour supply, however, may be affected appreciably by a number of factors not having been explicitly incorporated in the NUPRI model. One of these factors, for instance, is related to Japanese workers' attitudes toward their own jobs. The age composition of the labour force will shift pronouncedly. In 1990, the ratio of the male labour force aged 15-24 to that aged 60 and over is roughly 1.0, but is projected to fall to 0.5 in 2009 when the baby boom cohorts reach age 60. This age structural transformation is prone to adversely affect the upward mobility of young workers due to a lack of higher posts (Keyfitz, 1973), which may, in turn, erode a strong work ethic.

The other source of the decline of real GNP growth performance lies in the gradual fall in the saving rate. As presented in table 3, the gross national saving

rate is projected to decrease substantially over time, declining to 7.9 per cent by 2025. The expected rise in the social security contributions as well as in the household consumption resulting from population aging is primarily responsible for the fall in the saving rate; the increased social security contributions lead to a rise in the wage bill, which will, in turn, reduce corporate savings; and the growth of retirees relative to workers depresses household savings, as is theoretically consistent with the framework of life cycle savings (Mason, 1988). It should also be noted that Horioka (1988) has recently examined 30 different factors on the basis of data gathered from various OECD countries and Japan, and identified the following three significant factors accounting for Japan's high household saving rate: (i) the low proportion of the aged population, (ii) the bonus system, and (iii) the rapid rate of economic growth. The NUPRI model shows that both the first and third factors are likely to adversely affect Japan's household savings as her population aging process advances.

It is worth noting, however, that the above result for the saving rate may differ considerably, if the following three considerations are incorporated in the model. First, Ando (1985) has suggested the possibility that further improvements of life expectancy may motivate Japanese workers to save more. Second, the extent to which the Government's recent policy shift from export-oriented growth to domestic consumption-fueled growth is implemented may lead to a lower saving rate. Third, although the low interest rate policy has been implemented by the monetary authorities in postwar Japan, it is likely to rise in the future as Japan's financial liquidity diminishes in the process of population aging. Then, the higher interest rates in the domestic financial market will not only prevent a flight of capital abroad but also induce a return or inflow of capital from outside. Despite the declining savings rate, therefore, this shift of capital may lead to an increased capital-labour ratio, thus facilitating favorable growth performance. These three considerations, however, are not incorporated in the NUPRI model.

As Harada and Takada (1991) have recently demonstrated, using a simple simulation model, that Japan's saving rate may change appreciably, depending upon the future direction of the social security programmes. The NUPRI model has produced, by assuming that the current structure of the social security system is maintained throughout the projection period, trajectories of various social security-related variables. The projected results for a few key variables are displayed in table 3.

The male contribution rate for the leading pension scheme (EPS) is projected to grow from 14.5 per cent in 1990 to 20.6 per cent in the year 2009, and 32.7 per cent in 2025. Among Japanese pension planners, it has been generally agreed, though not theoretically well-grounded, that 20 per cent will be a limit to the contribution rate for EPS. In view of this implicit consensus, it is likely that Japan's pension system will be reviewed and modified again in the 1990s, which may be more drastic than the 1986 and 1994 major revisions.

Table 3. Japan's economic outlook: 1990-2025

Year	*Real GNP* (billion yen)*	*Real per capita GNP* (million yen)*	*Labour supply (million persons)*	*Annual hours worked (hours)*	*Savings rate (per cent)*
1990	409 410	3.31	6.414	2044	25.36
1995	487 142	3.89	6.734	2020	21.96
2000	558 991	4.40	6.818	1998	18.63
2005	623 481	4.87	6.764	1977	15.34
2010	671 927	5.26	6.597	1959	12.08
2015	703 902	5.59	6.406	1945	9.35
2020	733 100	5.97	6.258	1935	8.12
2025	754 946	6.34	6.077	1925	7.86

Year	*Real business investment* (billion yen)*	*Real personal consumption* (billion yen)*	*Real personal medical expenditure* (billion yen)*	*Government consumption (billion yen)*
1990	88 991	211 104	25 388	40 006
1995	102 353	248 621	31 191	54 556
2000	110 692	282 768	37 062	74 870
2005	119 922	315 574	42 719	99 477
2010	120 883	338 891	47 513	129 094
2015	116 371	349 258	51 589	162 465
2020	112 818	350 773	55 885	200 463
2025	109 764	340 979	58 709	245 643

* 1985 constant price

The total medical expenditure measured in nominal terms is expected to rise almost five times over the 35-year period. This increase in medical care costs is attributable to both the aging of the population and further medical technological progress. The share of Japan's GNP required for medical expenditure rises gradually from 4.7 per cent in 1990 to 6.5 per cent in 2025. At this juncture, it is interesting to compare these projected figures with the levels being experienced in some of the other industrialized nations. The share of GNP allocated to medical expenditure, which is adjusted for intercountry differences in coverage, was 7.6 per cent for France in 1989, and 9.9 for the United States in 1991 (Health and Welfare Statistics Association, 1994). When compared with these statistics, the projected results for Japan over the next 35 years indicate that it is unlikely to reach such high levels.

How much will Japanese taxpayers be required to contribute to the social security system over the next 35 years? In April 1990, the Government of Japan

Table 4. Future change in selected social security-related indicators: 1990-2025

Year	*Contribution rate for Employees' Pension Scheme* (per cent)	*Pension benefits paid out* (billion yen)	*Medical benefits paid out* (billion yen)	*Total medical expenditure* (billion yen)	*Social security contribution + tax revenue / national income* (per cent)
1990	14.50	23 155	18 157	20 607	38.60
1995	18.90	37 609	25 529	28 801	40.58
2000	18.90	57 271	34 577	39 591	41.39
2005	18.90	84 663	45 235	52 206	43.14
2010	22.01	119 210	56 050	64 986	46.78
2015	27.95	153 269	66 329	76 950	51.58
2020	30.91	177 547	77 509	89 541	55.11
2025	32.71	196 314	86 952	100 430	57.71

set a ceiling for the tax burden arising from financing the social security programmes. According to the Government plan, the national financial burden defined as [(social security contributions + taxes)/national income] should be kept below 45 per cent until the year 2005, and below 50 per cent for the subsequent two decades. As presented in table 4, although it appears to meet the first target of 45 per cent at the beginning of the next century, it is projected to exceed 50 per cent in 2014, reaching 58 per cent in 2025. Obviously, if the Government sticks to its current plan, both pension and medical care programmes will need to be considerably downgraded in the years to come.

In the process of downward adjustments, however, the intergenerational inequity issue is likely to arise in the public. To mitigate such intergenerational conflicts, long-term planning is essential, and revisions should be made well before the process of population aging accelerates in the early 21st century. In the 1990s, therefore, it is crucial for Japanese nationals to decide whether the current government plan for the social security system is acceptable. Are Japanese taxpayers willing to choose the high welfare/high cost scenario? Or, do they prefer the low welfare/low cost scenario? The choice between these alternative scenarios will clearly affect the extent to which families provide care to their elderly parents at home.

VII. ALTERNATIVE SIMULATION EXERCISES

In this section, we will analyze, by using the NUPRI model, (i) the impact of alternative paths for Japanese women's paid employment upon fertility, and (ii) the effect of alternative paths for educational planning upon Japanese women's career development and fertility.

Women's Paid Employment and Fertility Change

Due to the fact that lower fertility leads to a faster process of population aging, Japan's continuing fertility decline has recently created considerable concern at all levels of Japanese society (Ogawa and Retherford, 1993a). The Government worries about the loss of economic dynamism and future difficulties of financing the social security system. Business worries about shrinking numbers of consumers and a labour shortage that is likely to worsen because of the delayed effect of fertility decline on the size of the labour force. And with only one, two, or perhaps no children, adults worry about who will take care of them in their old age. As discussed earlier, Japan's TFR is affected considerably by women's participation in paid employment. Then, to what extent will the total fertility rate change over the projected period, subject to changes in the value of K in the fertility equation?

Figure 5 depicts three fertility paths produced under three different assumptions regarding the proportion of married women aged 15 and over who participate in the labour force. Case 1 represents the projected path derived from the assumption that the proportion will gradually approach the 1993 United States value (0.5541) specified by the logistic equation. In Case 2, the proportion is assumed to remain unchanged at the 1994 level. In Case 3, the ceiling value is raised to 0.6.

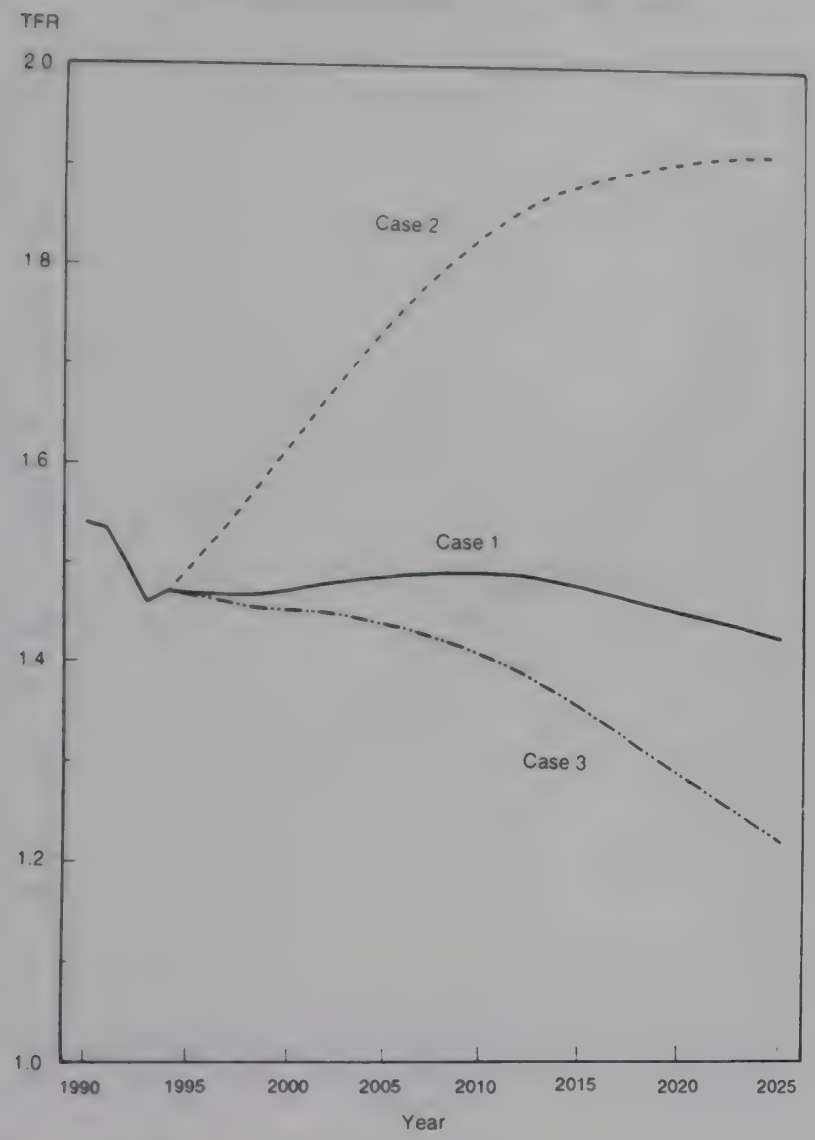
The simulated results shown in figure 5 indicate that the status of married Japanese women, which is measured in terms of labour force participation, influences Japan's future TFR to a substantial degree. In Case 2, TFR is projected to increase monotonically, due to husband's income effect on fertility, to 1.92 children per woman in the year 2025. In contrast, under Case 3, TFR is expected to fall to 1.22 children per woman in the final year of projection.

Women's Human Capital Planning and Fertility

In the present modeling study, the sex differential in human capital is assumed to continue to improve with the passage of time in the years to come. To what extent will Japan's TFR be affected if alternative scenarios are imposed with regard to Japan's future educational planning for university education? The following two scenarios have been employed to assess the impact of educational attainment upon fertility: (i) Case 4 in which the ratio of the number of female full-time paid employees with university education at ages 18-39 to their male counterparts is assumed to remain at the current level, and (ii) Case 5 in which the ratio rises at a slightly slower rate. In Case 5, the specification for the REDUC equation is linear rather than semi-logarithmic.

The simulated results are shown in figure 6. In both Case 4 and Case 5, the earnings differentials between men and women do not diminish as swiftly as Case 1. For this reason, TFR is projected to rise more appreciably in Cases 4 and

Figure 5. Alternative Paths for TFR

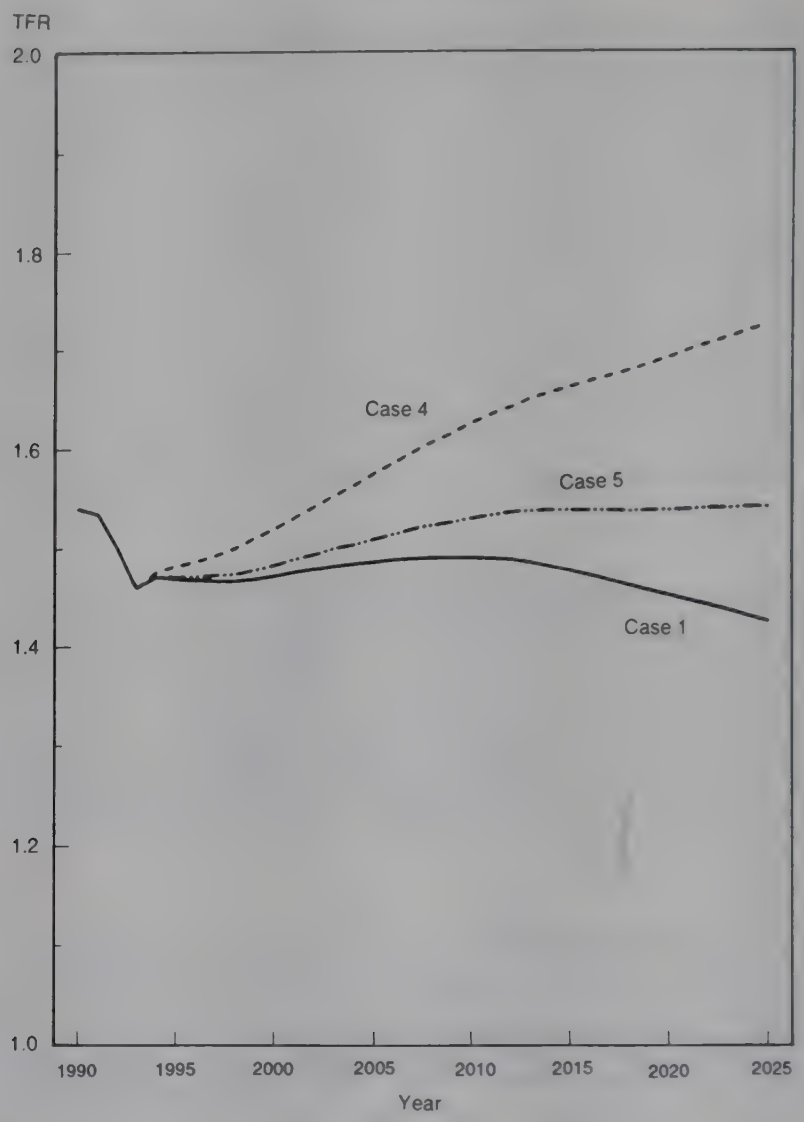


5 than in Case 1. In Case 4, TFR is expected to increase monotonically during 1993-2025. In the final year of simulation, TFR recovers to 1.72 children per women. In Case 5, TFR increases slowly to 1.54 children by the year 2025.

These numerical experiments point to the vital importance of policy options related to female workers and human capital planning, particularly when the Government introduces a package of pronatalist policies into Japanese society. In other words, changes in the status of Japanese women measured in terms of their career development and human capital formation are closely linked to the country's future fertility path.

It is also interesting to observe that these five alternatives affect the probability of women looking after their aged parents at home. Figure 7 shows that the probability of Japanese women in their 40s providing in-home care to their frail elderly parents varies considerably among the five alternatives. In Case 2, 32 per cent of the women in their 40s staying at home are expected to provide in-home care to their aged relatives, as opposed to 39 per cent for

Figure 6. Alternative Paths for TFR



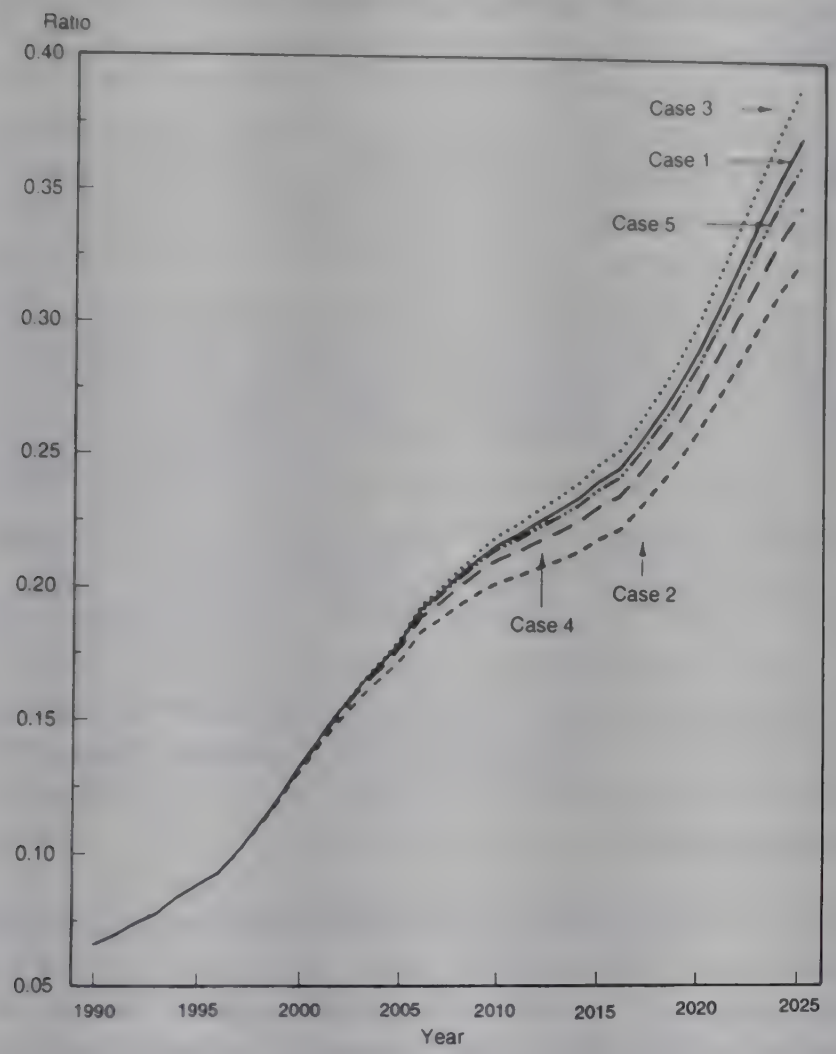
Case 3. These results indicate that labour market, family, and social security policies need to be formulated jointly in a comprehensive manner.

VIII. POLICY DISCUSSION

The projected results for the macroeconomic and demographic variables suggest that the population of Japan ages at an accelerated speed, which, in turn, gives rise to its slowing economic growth and increasing social security costs.

The model simulation results show that the supply factors, particularly labour supply, will constitute a major bottle neck to sustaining economic growth. One of the ways to overcome this supply-constrained growth scenario is related to further improvements of the status of Japanese women through female participation in the labour force as paid employees. The age-specific labour force participation rates of Japanese women still show an M-shaped pattern,

Figure 7. Impact of Alternative Paths upon In-home Care by Women Aged 40-49: 1990-2025



although participation among middle-aged women has been rising in recent years primarily due to their higher education, shortening of the reproductive span, and a more modern life-style (Shimada and Higuchi, 1985; Ogawa and Clark, 1995). It should be stressed that slightly more than half of married women working as paid employees are part-time workers, and that this proportion has been growing at a rate faster than that of full-time workers in the 1980s (Ogawa and Retherford, 1993a). This increased importance of part-time employment is related to the income tax rules. The removal of these tax rules is expected to lead to a further rise in the participation of middle-aged women in full-time paid employment.

To raise married women's participation in the work force without adversely affecting their reproductive activities, the Government has also been attempting to improve the availability of day-care Centres by extending their service hours rather than by increasing the number of day-care facilities. At present, although the supply of day-care facilities for preschoolers is reasonably sufficient, only 24 per cent of married women with children aged 0-5 are using day-care services

(Population Problems Research Council, 1990). Nevertheless, if recent trends of the growth of female labour force participation continue, the demand for day-care centres for preschoolers and primary school children is likely to increase at a rapid rate in the years to come.

The negative effects of having children on women's labour force participation can be moderated if married couples are residing with their parents (-in-law). However, coresidence with parents (-in-law) or living nearby can also reduce the likelihood of participation in paid employment if a woman must provide care for them. It has been shown in a recent study (Ogawa and Ermisch, 1995) that each additional month spent in the provision of care for either bedridden or senile-demented elderly kin depresses a wife's hourly wage by 1.2 per cent. In many cases, wives are forced to provide care for several months, so that their hourly wages tend to decline by almost 10 per cent. This fairly sizable impact is attributable largely to the fact that her loss of job tenure and/or opportunities for on-the-job training due to the provision of in-home care is costly. In order to pursue women's career development, and to alleviate labour shortages, the Government is now contemplating a care leave scheme for women who look after elderly kin at home. In view of the fact that a considerable proportion of women at ages 25-34 attend on their frail elderly relatives, this scheme should be urgently implemented to mitigate the women's burden of childbearing as well as caregiving for their parents.

Although the scope of this paper is confined largely to the Japanese context, Japanese experiences of improving the status of women in the process of rapid population aging seem to be useful in formulating suitable policies in many developing countries, particularly in Asia, currently undergoing rapid demographic transformations. Furthermore, in the face of its fast population change and economic development, Japan has retained some of its traditional cultural values, so that the Japanese model may be of relevance to policymakers in the developing region interested in combining the best of traditional and modern approaches in order to provide support to the elderly as well as women in charge of caregiving and childbearing.

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POPULATION CHANGE, WOMEN'S ROLE AND STATUS, AND DEVELOPMENT IN THE PHILIPPINES: EXECUTIVE SUMMARY*

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and
Ma. T. Sanchez

* The paper is an executive summary of a study report of the Philippines conducted during 1992-1994 under an ESCAP project on "Population Change, Women's Role and Status and Development" with financial support from the United Nations Population Fund. Research Assistance of Ms Mildred Belizario and Ms Corazon Bueno is gratefully acknowledged.

I. INTRODUCTION

The importance of women's role and status in socio-economic and demographic development has been recognized in various researches and fora. Theoretical and empirical studies, however, have been confined so far to household analyses. Given the profound implications of the interactions between the changing women's role and status and socio-economic and demographic development, there is a need to do a comprehensive analysis. The analysis should highlight the impact of these interactions at the system level. Up to this point system analysis has only been done at the conceptual level. There is therefore a need to push the analysis further toward the quantitative realms. This study attempts to do this.

II. METHODOLOGY

The study recognizes the complexity of the interaction between population change, women's role and status and development. This is one of the primary reasons why system analysis was recommended for the study. Given that there are already conceptual system analyses of these issues, the study was designed to do quantitative analyses. In attempting to do this, a couple of problems were encountered. First, some of the indicators are not quantitatively measurable much less amenable to quantitative modelling. Second, if variables are quantifiable often times the data series may not be long enough for econometric estimation. It is for these reasons that a two-track approach was adopted in the study. One track reviews the trend in women's role and status using both quantitative and qualitative indicators. The studies on the interactions between socio-economic and demographic development on the one hand and changing women's role and status on the other hand is then reviewed. Again the review is not constrained only to those studies dealing with interactions that is amenable to quantitative modeling but attempted to be comprehensive. Furthermore, in cases where there are no studies on a specific issue using Philippine data, what are discussed are results of studies done in other countries. The review also provides the background analyses that will be useful for developing the quantitative model. This is what Part I of the report contains. The second track deals with building a quantitative model utilizing ideas discussed in the review. Simulation results from the model form the basis for building future scenarios about the changing role and status of women given the backdrop of socio-economic and demographic development. The results of this track are contained in Part II of the report. This paper summarizes the whole report.

III. HIGHLIGHTS OF THE RESULTS AND IMPLICATIONS

A. DEMOGRAPHIC AND SOCIO-ECONOMIC DEVELOPMENT

The Philippine population tripled in a period of forty years from 19 million in 1948 to 61 million in 1990. The growth rate was above 3 per cent in 1950s and 1960s, slowing down to 2.7 per cent in 1970s and 2.4 per cent in the 1980s (table 1). Total fertility rate declined rapidly from 5.97 at the beginning of 1970s to 4.26 by the mid-1980s (table 2). From then on the decline was relatively slow. The period of the rapid decline roughly coincided with the introduction and enthusiastic implementation of the government-sponsored family planning programme. Mortality rate, on the other hand, rapidly declined after the war and slowed down in the 1960s and 1970s after the gains from technological advance were exhausted and further reduction depended more on socio-economic development (Herrin 1988). Infant mortality rate declined from 113 in 1960 to 58 in 1980. In terms of urbanization, the country is considered to be highly urbanized by Asian standards, in fact, it is the most urbanized in the region if the newly industrializing economies (NIEs) are excluded (Pernia and Israel 1994). In 1990 the proportion of the population living in urban areas was reported at 48.6 per cent. The frontierward movements by men in the 1950s and early 1960s was replaced by complex migration streams in the 1970s. A notable migration stream in the 1970s and 1980s is the metropolitanward movement of young, single and less educated women (Perez 1983, Engracia and Herrin 1984). Pernia and Israel (1994) surmised that since this rapid urbanization was not accompanied by robust economic growth and transformation, it is largely driven by population growth through rural-urban migration in the supply side, and the growth of the service sector – particularly, the informal service sector in the metropolis – in the demand side.

Table 1. Enumerated population and annual intercensal growth rate

Year	*Population*	*Average annual growth rate (per cent)*
1948	19 234 182	–
1960	27 087 685	3.06
1970	36 684 486	3.01
1975	42 070 660	2.78
1980	48 098 460	2.71
1990	60 684 887	2.35

Source: National Census and Statistics Office

Table 2. Trends in fertility and its proximate determinants: 1968-1988 (unadjusted survey estimates)

	SURVEY					
	1968 NDS	*1973 NDS*	*1978 RPFS*	*1983 NDS*	*1986 CPS*	*1988 NDS*
Total Fertility Rate	5.72	5.97	5.24	5.08	4.57	4.26
Marriage:						
Singulate mean age at first marriage (females)	23.4	23.8	24.5	23.3	23.4	23.8
Post-partum behavior						
Percentage breastfed		88.9	84.4	83.5	83.6	85.1
Duration B-feeding (mos.)			13.3	12.0	9.4	9.9
Duration full B-feeding (mos.)			3.3			3.0
Duration amenorrhea (mos.)			8.2	7.2	7.6	7.8
Duration non-susceptible period (mos.)			8.8	7.9		8.2
Contraception: Percentage using						
All methods	15.4	17.4	38.5	32.0	45.8	36.1
Modern methods	2.4	9.9	13.3	17.6	20.7	20.9
Other methods	13.0	7.5	25.2	14.4	24.1	15.2

Source: Casterline (1991)
Note: NDS = National Demographic Survey; RPFS = The Republic of the Philippines Fertility Survey; CPS = Contraceptive Prevalence Survey

Economic development of the country is characterized by rapid economic growth in 1970s and virtually no growth in the 1980s. The early 1990s is marked by recovery with clear indications that this growth pattern is sustainable. The average GNP growth rate was 7.39 per cent between 1970 and 1975. This feat was not duplicated in the 1980s as the country faltered in its growth performance marked by a minus 7.07 per cent growth in 1984. From a tentative recovery in early 1990s, the economy yielded a respectable growth rate of 5.5 in 1994. Given this growth record, the economy lost at least a decade of economic growth as the highest real per capita income of ₱ 1,932 (in 1972 pesos)[1] registered in 1981 was not yet recovered as of 1991.

The structural transformation of the economy is slow at best. The contribution of the agricultural sector to the gross domestic product declined from 39 per cent in 1950 to 27 per cent in 1990. The contribution of the industrial sector increased from 22 per cent in 1950 to 33 per cent in 1990. The contribution of the service sector is constant at about 40 per cent (table 3). But in terms of employment, agriculture still employs 45 per cent in 1990 from 59 per cent in 1950s. Despite its increasing contribution to output, employment in the industrial sector is almost steady at about 20 per cent. Employment in the services sector, on the other hand, increased from 22 per cent in 1950 to 35 per cent in 1990 (table 4). Thus, it appears that the service sector has absorbed the surplus labour.

[1] In 1972 the exchange rate in pesos to US$ is 6.7.

Table 3. Shares in the Gross Domestic Product, by industry (percentage)

	1950	*1955*	*1960*	*1965*	*1970*	*1975*	*1980*	*1985*	*1990*
Agriculture, Fishery & Forestry	38.78	37.25	34.39	34.28	28.88	26.65	25.56	29.20	26.95
Industrial Sector	21.93	21.47	23.40	24.18	29.50	33.19	36.16	32.26	32.96
Mining and Quarrying	1.04	1.19	1.35	1.17	2.14	2.11	2.42	1.97	1.46
Manufacturing	12.49	15.10	17.47	17.20	23.18	24.19	25.04	23.96	24.81
Construction	7.66	4.57	3.96	5.26	3.41	6.00	7.71	4.74	4.69
Electricity, Gas and Water	0.75	0.60	0.63	0.55	0.77	0.89	0.99	1.59	2.01
Service Sector	39.29	41.28	42.22	41.54	41.62	40.16	38.28	38.54	40.09
Transport, Comm. and Storage	2.97	3.40	3.49	3.52	4.03	4.79	5.21	5.51	5.44
Commerce	23.49	23.99	24.34	23.56	24.10	22.02	13.21	15.65	15.79
Services	12.83	13.89	14.38	14.46	13.49	13.34	19.86	17.39	18.86
GROSS DOMESTIC PRODUCT*	14 833	21 703	27 156	34 381	51 014	68 361	92 567	89 904	109 890

Source: Philippine Statistical Yearbook, various issues
Note: * For 1950-1965 these are Net Domestic Product

Table 4. Distribution of employed persons by major industry, 1956-1990

Major industry group	*October 1956*	*October 1961*	*October 1965*	*Census 1970*	*August 1975*	*Third Q 1980*	*Third Q 1985*	*October 1990*
Total	7 702	9 095	10 101	11 775	14 517	16 434	19 801	22 532
Agriculture, fishery and forestry	59.05	60.63	56.68	53.80	53.51	51.44	48.98	45.20
Industry	18.76	17.42	17.63	20.80	18.59	20.00	18.88	20.07
Manufacturing	12.49	11.28	10.90	11.80	11.37	11.04	9.71	9.71
Mining and quarrying	0.40	0.34	0.24	0.45	0.37	0.57	0.65	0.59
Electricity, gas and water	0.34	0.21	0.22	0.29	0.32	0.35	0.37	0.40
Construction	2.57	2.53	2.92	3.92	3.14	3.58	3.45	4.32
Transportation, storage & comm.	2.96	3.06	3.36	4.35	3.39	4.45	4.70	5.05
Services	21.58	21.53	25.23	23.67	27.63	28.53	32.12	34.66
Wholesale and retail trade	10.43	9.60	11.03	7.32	11.18	10.10	13.19	13.96
Financing, insurance, real estate, and business services				1.79		2.04	1.73	1.97
Community, social and personal serv.	11.15	11.93	14.20	14.57	16.45	16.39	17.21	18.73
Industry not adequately defined or reported	0.61	0.43	0.47	1.65	0.27	0.04	0.02	0.07

Source: National Statistics Office

Notes: 1. 1956, 1961, 1965, 1970 based on household population 10 years and over
2. 1975, 1980, 1985, 1990 based on household population 15 years and over

Developments in the social sector is highlighted by an ambivalent record in the nutrition status of children and considerable educational deepening accompanied by some disturbing trends on quality of education outcomes. The gains in terms of the proportion of moderately severely underweight preschoolers and the percentage adequacy of per capita intake for both energy and protein in the early 1980s were not sustained in the 1990s (table 5). In the education front, enrollment rates both at the elementary and secondary levels continue to rise, while there is a continued reduction in the proportion of adults having no education and an increasing proportion of those having higher education attainment (table 6). Education outcome indicators, however, show a disturbing trend. Survival rates in both elementary and secondary levels appears to be stagnant. The mean scores in the National College Entrance Examination (NCEE) is not also improving (table 5).

B. TRENDS IN THE ROLE AND STATUS OF WOMEN

Examining the data in the postwar period reveals a mixed trend on the role and status of women. In terms of education status, women are at par with men if not surpassing them. In terms of employment opportunities, on the other hand, those with supervisory functions are still dominated by men while the professional technical category are dominated by women. In addition, there are still more women unpaid family workers than there are men. There has been a continued improvement in legal rights of women largely because of the acts of the United Nations and American influence. More recently, women have participated quite actively in politics, in policy making and public administration.

In terms of the education status, the data shows that Filipino women are comparable with men and sometimes even surpassing them. That women surpass men in educational status is evident at the higher levels of education. However, this is accompanied by the stark reality that there are still more women who have no education at all than there are men (table 6). The distribution of men and women who are 25 years old and over by highest educational attainment shows that indeed since 1975 more women than men have finished college. However, when one looks at the other end of the table, there are still more women who have no education at all. Among the reasons advanced to explain this phenomenon include: (i) daughters received more education but less land (Quisumbing 1991); (ii) there are more opportunities for employment for boys in the agricultural labour force and boys tend to earn higher agricultural wage than girls, hence, the short-run opportunity cost of education for boys may be higher (Bouis 1992); (iii) parents rely more on their daughters than on their sons to study conscientiously, keep stable jobs, and provide support in their old age (King and Domingo 1986, Lynch and Makil 1968, Hollnsteiner 1970).

In terms of labour force and employment, the postwar data indicate some forms of discrimination. For instance, the labour force participation of women is

Table 5. Selected nutrition and education indicators

	1978	*1982*	*1987*
A. Nutrition indicators			
Proportion of moderately severely under weight pre-schoolers to total 0-6 years using weight-for-age standard	21.9	17.2	17.7
Percentage adequacy of per capita intake*			
Energy	88.6	89.0	87.1
Protein	102.9	99.6	98.2

B. Selected education indicators

	74-75	*76-77*	*78-79*	*80-81*	*82-83*	*84-85*	*86-87*	*88-89*
Survival rates								
Elementary (Grade I-VI)	59.3	65.6	67.5	65.7	66.4	65.4	65.1	66.6
Secondary (Year I-IV)	69.7	79.9	78.1	75.4	73.6	77.8	71.7	76.1
Combined elementary and secondary enrolment rate	–	54.9	57.5	57.6	56.4	56.0	55.5	58.1
	1975	1977	1979	1981	1983	1985	1987	1989
Mean NCEE Scores	506.86	514.55	498.89	499.68	499.59	499.7	–	–

Basic Source: Economic and Social Indicators (various issues)
* DOST, FNRI 1978, 1982, 1987 Nutrition Survey

Table 6. Proportion of population 25 years and over by highest grade completed, 1948-1980

YEAR	TOTAL POP (000)	NO GRADE	ELEMENTARY		HIGH SCHOOL		COLLEGE		Not Stated
			1-5	6+	1-3	4	1-3	4+	
MALE									
1948									
Both sexes	6 909	55.46	29.32	4.72	5.63	2.19	2.00	0.68	*
Male	3 428	51.21	30.22	5.49	6.94	2.78	2.53	0.82	*
Female	3 481	59.65	28.43	3.95	4.33	1.62	1.47	0.54	*
1956									
Both sexes	7 681	34.67	40.14	11.22	4.92	3.88	2.97	2.41	*
Male	3 751	29.94	40.18	12.85	6.00	5.25	3.07	3.17	*
Female	3 930	39.19	40.10	9.67	3.89	2.57	2.88	1.68	*
1960									
Both sexes	9 438	33.45	37.51	12.03	5.88	4.70	2.76	3.46	*
Male	4 709	29.59	37.39	12.73	6.95	5.86	3.05	4.00	*
Female	4 728	37.29	37.62	11.33	4.83	3.55	2.47	2.92	*
1965									
Both sexes	10 336	20.14	40.71	16.84	7.34	6.56	3.52	4.91	*
Male	5 144	17.09	40.12	17.05	8.16	8.09	4.34	5.27	*
Female	5 192	23.17	41.29	16.64	6.53	5.05	2.72	4.56	*
1970									
Both sexes	12 697	19.69	38.13	18.00	7.61	6.51	3.54	5.98	0.55
Male	6 227	17.19	37.71	17.76	8.56	8.04	4.26	6.09	0.38
Female	6 469	22.09	38.53	18.22	6.69	5.03	2.85	5.88	0.71
1975									
Both sexes	14 879	13.82	35.05	21.20	8.27	7.75	4.26	7.32	2.35
Male	7 549	12.12	34.56	20.37	9.12	9.35	5.08	7.07	2.34
Female	7 331	15.54	35.55	22.05	7.40	6.12	3.42	7.58	2.35
1980									
Both sexes	17 959	11.65	31.10	22.72	9.37	9.46	5.36	9.81	0.52
Male	8 930	10.08	30.95	21.87	10.15	11.09	6.21	9.15	0.50
Female	9 030	13.21	31.24	23.57	8.61	7.86	4.51	10.46	0.55
1990									
Both sexes	24 156	6.53	18.13	28.92	10.06	14.21	8.06	10.65	0.51
Male	11 989	5.66	18.77	27.49	10.36	15.85	9.15	9.42	0.46
Female	12 168	7.38	17.60	30.32	9.77	12.60	7.00	11.86	0.55

Source: 1948, 1960, 1970, 1975, 1980, 1990 Census of Population
1956, 1965 BCS Survey of Household Bulletin: Labour Force Survey with Educational Attainment Data

Note: * included in no grade category

about half that of men. In addition, the unemployment rate for women is higher than that of men (table 7). Furthermore, positions of supervision and authority are dominated by men.

In terms of proportion of workers by industry, women dominate the wholesale and retail trade as well as community, social and personal services. Men, on the other hand, dominate agriculture, mining and quarrying, electricity gas and water, construction and transportation, storage and communications. There is a clear trend of more women working in utilities sectors such as electricity, gas and water industries. The manufacturing industry, on the other hand, shifted from a female dominated industry in 1950s to a male dominated industry from 1975 onwards (table 8).

In terms of distribution of working women across industries, agriculture, fishery and forestry and the manufacturing sectors employed the largest proportion of women. An increasing proportion is working in the wholesale and retain trade as well as in the community, social and personal services industries (table 9).

In terms of occupational groups, sales and services are female-dominated occupations. Males on the other hand dominate the agriculture-related as well as the production-related occupations. Professionals, technical and related occupations as well as clerical occupations are increasingly being dominated by women. Administrative, executive and managerial occupations are increasingly dominated by men (table 10).

In terms of distribution across professions, like men a large proportion of women are in the agriculture-related and production-related occupations. There is also an increasing proportion of women in the sales, services and profession and technical workers' category (table 11).

Examining the distribution of employed workers by class showed that there are more women who are unpaid family workers than there are men (table 12).

In terms of legal rights, women status have advanced considerably during the post-war period due mainly to the acts of the United Nations and to American influence. There is legal equality in terms of property rights, education, suffrage and citizenship. The remaining legal inequality are in the family relations and work regulations. Women's right to property and right to pursue a legitimate profession or activity without the consent from the husband was assured in the Family Code of 1987. Tidalgo (1985), however, pointed out that there is still no clear delineation of the responsibility of financing women's reproductive function which is required for the continuance of society. There maybe favorable pieces of legislation but these are largely ignored. For instance, there is a law (RA 679 (1952)) requiring employers with at least 15 married women to establish a nursery under the supervision of a registered nurse or a qualified midwife and to allow

Table 7. Employment status, by sex, 1956-1990.

Major industry groups	*October 1956*	*October 1961*	*October 1965*	*Census 1970*	*August 1975*	*Third Q 1980*	*Third Q 1985*	*October 1990*
Both Sexes								
LF participation rate	56.82	55.61	53.13	48.96	50.96	59.75	63.36	64.54
Employment rate	89.97	93.64	93.84	92.34	95.75	94.95	92.88	91.87
Unemployment rate	10.03	6.36	6.16	7.66	4.25	5.05	7.12	8.13
Male								
LF participation rate	73.41	71.88	71.25	67.88	68.03	77.72	79.88	–
Employment rate	91.46	94.94	95.10	94.63	96.19	96.83	94.60	92.88
Unemployment rate	8.54	5.06	4.90	5.37	3.81	3.17	5.41	7.12
Female								
LF participation rate	40.95	36.03	35.31	30.85	34.31	42.01	47.33	–
Employment rate	87.41	91.23	91.35	87.51	94.91	91.51	90.08	90.16
Unemployment rate	12.59	8.77	8.65	12.49	5.09	8.49	9.91	9.84

Source: National Statistics Office

Notes: 1. 1956-1970 include population 10 years old and over
2. 1975-1990 include population 15 years old and over

Table 8. Proportion of female employed persons by major industry, 1956-1990

Major industry groups	*October 1956*	*October 1961*	*October 1965*	*Census 1970*	*August 1975*	*Third Q 1980*	*Third Q 1985*	*October 1990*
Agriculture, fishery and forestry	25.35	25.08	21.52	19.46	21.73	23.92	25.42	25.18
Industry	43.39	39.14	32.51	31.49	29.97	26.54	26.46	24.12
Manufacturing	64.24	59.84	51.41	54.17	46.76	44.54	47.81	45.75
Mining and quarrying	3.23	0.00	4.17	5.24	5.56	11.70	6.25	9.02
Electricity, gas and water	3.85	0.00	9.09	3.96	10.87	8.62	19.18	17.58
Construction	0.51	1.30	0.34	0.74	1.32	1.70	0.88	1.75
Transportation, storage & comm.	2.63	1.08	2.65	2.21	4.67	5.19	4.51	3.96
Services	57.28	58.32	57.38	55.73	59.66	57.82	60.12	57.93
Wholesale and retail trade	58.53	58.99	58.71	54.83	57.36	66.51	67.06	63.69
Financing, insurance, real estate, and business services				23.50		31.25	32.16	39.41
Community, social and personal serv.	56.11	57.79	56.35	60.14	61.22	55.77	57.60	55.59
Industry no adequately defined or reported	51.06	46.15	48.94	24.97	38.46	16.67	100.00	33.33

Source: National Statistics Office

Notes: 1. 1956, 1961, 1965, 1970 based on household population 10 years and over
2. 1975, 1980, 1985, 1990 based on household population 15 years and over

Table 9. Distribution of employed persons by major industry, by sex, 1956-1990

Major industry group	*October 1956*	*October 1961*	*October 1965*	*Census 1970*	*August 1975*	*Third Q 1980*	*Third Q 1985*	*October 1990*
Male (Number, Thousands)	4 946	5 932	6 805	8 160	9 612	10 827	12 519	14 347
Agriculture, fishery and forestry	68.64	69.64	66.02	62.52	63.25	59.40	57.78	53.11
Industry	16.54	16.25	17.66	20.57	19.66	22.30	21.96	23.92
Manufacturing	6.96	6.95	7.86	7.80	9.14	9.29	8.01	8.27
Mining and quarrying	0.61	0.52	0.34	0.61	0.53	0.77	0.96	0.84
Electricity, gas and water	0.51	0.32	0.29	0.40	0.43	0.49	0.47	0.52
Construction	3.98	3.83	4.32	5.61	4.68	5.34	5.42	6.67
Transportation, storage & comm.	4.49	4.64	4.85	6.14	4.88	6.41	7.10	7.61
Services	14.36	13.76	15.96	15.13	16.83	18.27	20.27	22.90
Wholesale and retail trade	6.73	6.04	6.76	4.77	7.20	5.14	6.87	7.96
Financing, insurance real estate and business services				1.98		2.13	1.85	1.87
Community, social and personal serv.	7.62	7.72	9.20	8.38	9.63	11.00	11.54	13.06
Industry no adequately defined or reported	0.47	0.35	0.35	1.78	0.25	0.05	0.00	0.07
Female (Number, Thousands)	2 756	3 163	3 296	3 615	4 905	5 607	7 282	8 185
Agriculture, fishery and forestry	41.84	43.72	37.38	34.10	34.41	36.06	33.85	31.34
Industry	22.75	19.60	17.57	21.34	16.49	15.55	13.58	13.33
Manufacturing	22.42	19.41	17.17	20.82	15.74	14.41	12.62	12.23
Mining and quarrying	0.04	0.00	0.03	0.08	0.06	0.20	0.11	0.15
Electricity, gas and water	0.04	0.00	0.06	0.04	0.10	0.09	0.19	0.20
Construction	0.04	0.09	0.03	0.09	0.12	0.18	0.08	0.21
Transportation, storage & comm.	0.22	0.09	0.27	0.31	0.47	0.68	0.58	0.55
Services	34.54	36.10	44.36	42.97	48.79	48.35	52.51	55.27
Wholesale and retail trade	17.05	16.28	19.84	13.07	18.98	19.69	24.05	24.47
Financing, insurance, real estate, and business services				1.37		1.87	1.51	2.14
Community, social and personal serv.	17.49	19.82	24.51	28.53	29.81	26.79	26.96	28.66
Industry no adequately defined or reported	0.87	0.57	0.70	1.34	0.31	0.02	0.05	0.06

Source: National Statistics Office

Notes: 1. 1956, 1961, 1965, 1970 based on household population 10 years and over

2. 1975, 1980, 1985, 1990 based on household population 15 years and over

Table 10. Proportion of female employed persons by major occupation, 1956-1990. (in per cent)

Major occupational group	*October 1956*	*October 1961*	*October 1965*	*Census 1970*	*August 1975*	*Third Q 1980*	*Third Q 1985*	*October 1990*
Professional, technical and related workers	49.54	55.99	56.27	56.79	58.51	60.92	67.60	63.17
Administrative, executive and managerial workers	55.11	53.53	55.32	28.52	19.59	24.69	21.39	27.65
Clerical workers	18.95	23.08	27.56	37.92	48.02	46.38	52.83	54.03
Sales workers	62.06	64.25	60.89	56.90	61.06	65.10	67.20	65.36
Service workers	63.40	63.52	63.69	66.04	66.61	58.17	58.61	58.06
Agricultural, animal husbandry, forestry workers, fishermen and hunters	25.46	25.12	21.70	19.58	21.86	23.97	25.51	25.24
Production and related workers, transport equipment operators and labourers	43.86	40.82	32.14	29.73	28.43	23.92	22.98	19.98
Occupation not adequately defined	63.41	48.28	52.38	28.35	48.28	0.00	50.00	48.11

Source: National Statistics Office

Notes: 1. 1956, 1961, 1965 based on household population 10 years old and over
2. 1970 based on employed workers 10 year old and over with experience
3. 1975, 1980, 1985, 1990 based on 15 years and over

Table 11. Distribution of employed persons by major occupation, by sex, 1956-1990 (in per cent)

Major occupational group	*October 1956*	*October 1961*	*October 1965*	*Census 1970*	*August 1975*	*Third Q 1980*	*Third Q 1985*	*October 1990*
Male (Number, Thousands)	4 946	5 932	6 805	8 160	9 612	10 827	12 519	14 347
Professional, technical and related workers	2.20	2.29	2.41	3.53	3.47	3.79	3.05	3.60
Administrative, executive and managerial workers	3.19	2.66	2.84	1.22	1.24	1.13	1.17	1.33
Clerical workers	2.51	3.54	3.75	2.91	3.01	3.69	3.13	3.14
Sales workers	3.50	3.24	3.88	4.21	5.73	5.40	6.70	7.30
Service workers	4.00	3.91	4.48	3.72	4.36	4.80	5.43	6.09
Agricultural, animal husbandry, forestry workers, fishermen and hunters	68.20	69.44	65.32	61.65	62.70	58.93	57.00	52.30
Production and related workers, transport equipment operators and labourers	16.09	14.67	17.03	21.59	19.33	22.21	23.48	25.85
Occupation not adequately defined	0.30	0.25	0.29	1.17	0.16	0.05	0.02	0.38
Female (Number, Thousands)	2 756	3 163	3 296	3 615	4 905	5 516	7 282	8 185
Professional, technical and related workers	3.88	5.47	6.40	10.48	9.60	11.58	10.94	10.81
Administrative, executive and managerial workers	7.04	5.75	7.25	1.10	0.59	0.73	0.55	0.89
Clerical workers	1.05	1.99	2.94	4.01	5.44	6.27	6.03	6.48
Sales workers	10.27	10.91	12.47	12.55	17.61	19.78	23.61	24.15
Service workers	12.45	12.77	16.23	16.32	17.04	13.11	13.22	14.78
Agricultural, animal husbandry, forestry workers, fishermen and hunters	41.80	43.69	37.38	33.88	34.37	36.46	33.56	30.95
Production and related workers, transport equipment operators and labourers	22.57	18.97	16.66	20.62	15.05	13.71	12.04	11.31
Occupation not adequately defined	0.94	0.44	0.67	1.05	0.29	0.00	0.04	0.62

Source: National Statistics Office

Notes: 1. 1956, 1961, 1965 based on household population 10 years old and over
2. 1970 based on employed workers 10 year old and over with experience
3. 1980, 1985, 1990 based on 15 years and over

Table 12. Employed persons by class of worker by sex, 1960-1990

Major industry group	*October 1960*	*October 1965*	*Census 1970*	*August 1975*	*Third Q 1980*	*Third Q 1985*	*October 1990*
Both sexes							
Total employed	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Wages and salary workers	32.8	36.5	41.7	40.2	42.3	43.8	45.7
Self-employed workers	42.3	41.2	38.1	36.9	37.8	39.7	38.3
Unpaid-family workers	24.5	21.9	19.8	22.7	19.9	16.5	16.0
Not reported		0.4	0.4				
Male							
Total employed	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Wages and salary workers	31.7	34.9	40.4	37.3	41.6	44.0	45.7
Self employed workers	48.2	47.9	43.8	43.7	44.0	43.5	42.4
Unpaid family workers	19.8	16.9	15.5	18.8	14.4	12.5	11.9
Not reported		0.3	0.3				
Female							
Total employed	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Wages and salary workers	35.0	39.7	44.6	45.9	43.6	43.5	45.7
Self employed workers	30.2	27.4	25.4	23.6	25.8	33.2	31.1
Unpaid family workers	34.1	23.2	29.4	30.2	30.6	23.1	23.2
Not reported		0.7	0.7				

Source: National Statistics Office

Notes: 1. 1956, 1961, 1965 based on household population 10 years old and over
2. 1970 based on employed workers 10 year old and over with experience
3. 1980, 1985, 1990 based on 15 years and over

mothers one-half hour twice a day during her working hours to nurse her child. But this has rarely been enforced, if at all, and is expected to continue to be so as long as the economy has surplus labour. The establishment of day-care centres in every barangay with a least a hundred family heads "to look into the nutritional needs and social and mental development of children 2 to 5 years old" was decreed in 1978 (P.D. 1587). However, no firm funding was stipulated for this undertaking.

Thus, Tidalgo (1985) warns that rights established by laws has to be tested in court because implementation does not necessarily follow. She pointed out that despite legal equality socio-cultural barriers may still hinder women's full participation in development.

Representation of women in nation building have been secured only recently with the 1987 constitution providing for appointive women sectoral representatives in congress. The 1991 Local Government Code also provides that women be represented in local councils. A considerable number of women have also won elective seats in Congress and Local Governments. This has been accentuated, of course, with the election in 1986 of Mrs. Aquino as the first woman President of the Republic. A bright spot in women participation in development is demonstrated by the composition of employees of the bureaucracy. Sixty per cent of the women occupy professional and technical position while 30 per cent occupy executive positions. These proportions are higher than most developing countries and even many developed countries as well. This is reflective of the high education status of women as mentioned earlier. Women, particularly women non-governmental organizations, have been active in the monitoring and evaluation of programmes and projects. The methods used ranges from lobbying, information dissemination of complaints to public approval (UNDP 1994).

The trends presented above points to emerging issues in the future. One unique feature of Philippine socio-economic development is the high education status of women. This has propelled women into dominating the professional and technical category of workers. The middle level civil service position is also dominated by women. In addition, they have established a foothold in career executive positions. If women continue to breakaway from men in terms of finishing tertiary education, the dominance of men in managerial and supervisory positions will likely diminish in the future as women assert themselves. While in the past socio-cultural factors may have constrained women from participating actively in politics, breaking away from these barriers is increasingly being demonstrated by a growing number of women running and winning elective posts. Furthermore, more and more non-governmental organizations are being headed by women. In the labour force participation front, there is much room for increasing labour force participation of women. While good prospects for women are clear in the political and economic fronts, the country still has one of the highest fertility rates compared to neighboring countries and compared to countries

with similar education status of women. This constitutes a continuing drag for economic and political activities of women.

C. THE INTERACTION BETWEEN POPULATION CHANGE, WOMEN'S ROLE AND STATUS AND DEVELOPMENT: A REVIEW

The review of existing studies on the interaction of population change, women's role and status and development highlighted several important results. While it is the hypothesis of this study that the interactions are simultaneous in the course of development, the discussions that follow will do so in a uni-directional causation manner for ease of presentation purposes.

The interaction of women's role and status and economic and demographic development is keyed to the fertility, labour force participation and education nexus which at certain points in a woman's life become concurrent decisions. Exogenous stimulus that affect any of these decisions directly or indirectly will have profound consequences both on the status of the woman herself as well as the general economic and demographic development. Thus, the review shall dwell primarily on this set of interactions.

The presentation of this subsection is organized as follows: (1) the impact of development on women's role and status; (2) the impact of demographic change on women's role and status; and (3) the impact of changes in the role and status of women on economic and demographic development.

The impact of development on women's role and status can be traced from the impact of: (1) changes in income and wages, and (2) changes in the structure of the economy, on fertility[2] and the labour force participation of women.

Changes in income and wages have both positive and negative effects on fertility. The positive effect of income on fertility is due to its effect on supply factors such as better health and nutrition of mothers leading to higher fecundity. The negative effect, on the other hand, is due to the observed preference of high income households for smaller family size. Both of these effects are captured in the threshold hypothesis of fertility which states that positive income effect dominates at lower levels of income while the negative preference effect dominates beyond some threshold income level (Encarnacion 1973, Encarnacion 1974, Encarnacion and Canlas 1977). Income and wages also have positive effects on labour force participation of women. Like any other worker, women respond positively to wage incentives. In addition, just like any other worker women also withdraw from the labour force beyond a certain level of income. There is,

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[2] Although fertility can be both demographic variable and woman variable, in this study it is taken as a variable representing women's role and status as mothers and wives.

however, one key difference between men and women workers. Besides these factors, however, women do consider their responsibilities in the home in their decision to participate in the labour force (Mangahas and Ho 1977). Thus, jobs need to be classified between those that are in conflict with home roles (i.e., jobs in formal settings) and those that do not (i.e., informal sector jobs that can be done at home). In addition, the availability of alternative sources of child care such as house help or in-laws need to be considered too.

The response of women to structural changes are shown to depend on their capabilities. These capabilities can be hampered by socio-economic constraints. Among the constraints is access to inputs such as technology and credit as well as skill requirements (World Bank 1989). It is also shown that the constraints are not limited to availability of these inputs but also on sociocultural factors, such as occupational segregation, as well. In addition, the types of jobs generated by development are important because women have to balance between home and labour market demands. Jobs that allow women to fulfill home time demands favor women workers. Furthermore, the rate of growth of employment relative to the growth of labour supply determines whether men have to compete with women in even traditionally women-held jobs (Acevedo 1985).

The impact of demographic processes on women's role and status include the impact of fertility, mortality and migration. Fertility affects directly the ability of women to participate in the labour force. It can also hamper the ability of women to acquire higher education and training. Again, the severity of these effects is mitigated by the presence of alternative sources of child care. The effect of mortality on women's role and status are felt principally via its effect on fertility. The replacement hypothesis says that high infant mortality causes high fertility. The effect of migration on the status of women, on the other hand, is relatively complex. In general, "forced" migration such as accompanying the migrating husband or migrating because of lack of local employment opportunities usually does not lead to increases in the status of women. Examples of migration that may improve women's status are those done by husbands alone such that women assume the decision-making function in the household in their absence. Other examples of status-improving migration are those done to exploit better employment opportunities available in destination areas. Recent migration streams have been shown to be to metropolitan areas and have been dominated by young, single and less-educated women. This migration may not have contributed to the improvement in the status of women in general.

The feedback impacts of changes in the role and status of women on socio-economic and demographic variables are the next issues we will be looking at. The key women's role and status indicators that this subsection will be focusing on are the changes in labour force participation and education of women.

The labour force participation of women affects fertility, mortality, the health and nutrition and education status of children.

It is well-accepted that the effects of labour force participation on fertility are negative. However, this was qualified by recent researches which found that it is not labour force participation per se that hinders fertility but the type of work (Concepcion 1973,; Feranil and de Guzman, 1977; Engracia and Miralao, 1989). Only those work that aggravates the conflict between home time demands and labour market demands, such as work in formal setting, produces the negative effect. Other types of work such as those that can be done at home may have no effect or even have positive effect on fertility. There will be positive effects of labour force participation on fertility if the income effect of work (via the supply factors) dominate. This is specially true for low income households as argued by the threshold hypothesis.

The effect of labour force participation on (infant and child) mortality appears to be [even] less straightforward. This is because there are negative income effect and positive "absence effect". Work provides more income, hence, also better ability to meet household (child care good) demands. But work may also require absence in the home which can result into, at least, a deterioration in child care quality which can lead to mortality. Important research results in this area reveals that working mothers have shorter breastfeeding periods compared to non-working mothers (Raymundo, 1985; Costello and Palabrica-Costelo 1984). This has both negative effect on children's health and nutrition and positive effect on fecundity. Labour force participation has positive effect on education of children because work brings in income and education is a normal good. But, absence of mothers due to work may also result in the deterioration of the children's performance in school because of the lack of home support in such activities as doing homework.

Women's education is found to be one of the most robust negative determinants of fertility. Like the impact of income, the negative impact on fertility may come only beyond some threshold level (Encarnacion, 1973; Encarnacion 1974; Canlas and Encarnacion, 1977). Whyte and Whyte (1982) found that in rural Asia fertility and schooling up to the secondary level are positively correlated. The negative effects of education is only found beyond the high school level (Castillo 1976; Encarnacion 1973). At lower levels of education its positive effect on health and nutrition practices that increases fecundity may dominate. Women's education has well-known positive effects on child health and nutrition. Higher education of women is associated with increases in calorie intake (Valenzuela 1978; Popkin 1980) and height-for-age (Barrera 1990, Senauer and Garcia 1991). This is because higher education of women were found to result in better health care practices and nutritional intake. Labour force participation of women is also positively affected by education. This is because education increases both the cost of staying at home and the probability of being

employed. Finally, education of mothers appears to positively affect the education of children (Paqueo 1985, King and Lillard 1983).

D. MODELLING POPULATION CHANGE, WOMEN'S ROLE AND STATUS AND DEVELOPMENT

The study presented an economic-demographic model that implements the population and development framework. The framework spouses the idea that economic and demographic variables are simultaneously determined in the course of development. A women submodel designed to capture the impact of changing role and status of women is also presented. The interactions captured in the women submodel is not as rich as those pointed out in Part I. As mentioned earlier, many of the variables are not quantifiable while others do not have long enough data series to allow econometric estimation. Nevertheless, the primary indicators of women's role and status are covered in the submodel presented. These include: labour force participation, education and fertility by age-group and wage rate and proportion of unpaid family workers by sex. The resulting estimated submodel is a good compromise between conceptual considerations and data availability.

The model was developed based on an existing economic-demographic model in the country. The basic model infrastructure used is the Population and Development Planning (PDP) model described earlier in Paqueo, Herrin and Associates (1984), Paqueo (1988) and Orbeta (1991). A women submodel was added to the original two submodels, namely: the economic submodel and demographic submodel. In addition, modifications were done to the original submodels in order to appropriately graft the women submodel and make these submodels a truly integrated system of equations that can be solved simultaneously. The discussion that follows describes the features of the model.

The economic submodel consists of the following components: the income determination block; the labour and employment block; the consumption, investment, and capital accumulation block; the price block; government finance block; demand for land; structural change block; the financial sector block; and the external sector block.

The production function concept is employed in the income determination equation which suggests that output is supply determined. Output is determined by the capital stock, and labour input augmented by human capital variables. The capital stock is divided into those that are privately-originated and those which are government-originated. The estimated form used output per worker as the dependent variable and assumed constant returns to scale.

The labour and employment block assumes that the wage rate responds to demographic pressure but with a time lag. This is a departure from the modeling

of both the standard labour surplus economy of Lewis (1954) and Fei and Ranis (1964) as well as the neoclassical labour market. However, a notional demand for labour was computed using the neoclassical dictum of equality of marginal product of labour and real wage rate. Actual wage rates were made to respond to this notional neoclassical wage rate. This was done to secure the consistency of the estimated production function and the demand for labour equation.

Population growth affects both private and public consumption expenditures. Private consumption is affected by changes in population structure as represented by the youth dependency ratio. The private consumption is further broken down into expenditures for education, health, food and a catchall product called others. Public consumption expenditure, on the other hand, is determined by population size and government revenue.

The general domestic price level is determined by both an excess liquidity variable as well as structural variables. The excess liquidity variable used is the ratio of money supply (M1) to GNP while the structural variables are the domestic price of imported goods and the wage rate. The consumer price index is determined by this general price level.

The demand for land is determined by population size and agricultural wages. The proportion of output from agriculture, on the other hand, is determined by per capita income and a land scarcity indicator. The proportion of output from industry is determined by per capita income and the wage of unskilled workers. This implies that structural change is both demand and supply determined.

The external sector is confined to the determination of the current account and its components. Exchange rate is considered exogenous.

The financial sector block includes the determination of the money supply and general interest rate variable – the interest rate on 90-days treasury bills. This block is assumed to be instantaneously equilibrating with the interest rate adjusting to ensure equality of demand and supply of money.

The model is closed by making imports the residual of the expenditure equation. In turn, the domestic price of imported goods is a determinant of the general price level.

The demographic submodel is basically an abridged life table driven by the infant mortality rate, and the equations estimating age-specific (female) population using the survivorship functions implied by the life table. The male population was estimated using the computed sex-ratio lagged one year. The life table employs the Brass logit system using the 1970 life table in Fleiger et al. (1981)

as standard. The age-specific fertility determines the number of births in each period.

The infant mortality rate, age-specific fertility rates, and the proportion of households living in the rural areas are functions of socio-economic variables. It is through these three variables that economic development affects demographic processes and outcomes.

The women submodel consist of equations for age-specific labour force participation rate of women,[3] age-specific fertility rates, education status by sex, wage rate (income) by sex, proportion of unpaid family workers by sex.

The estimated equation utilized the ideas highlighted in the review discussed earlier. Labour force participation of women is determined by fertility rate, education status, wage rate, and unemployment rates. Age-specific fertility rates are determined by the percentage of women in the age-group who are married, labour force participation, and educational status. Total fertility rate is, in turn, determined from these age-specific fertility rates. Education status are determined by per capita income, wage rates, labour force participation, lagged education status, and percentage in the age-group who are married.[4] Wage rates by sex are determined by the proportion of the labour force who are women or men, as the case maybe, and the proportion of unpaid family workers by sex. Finally, the proportion of unpaid family workers by sex are determined by education status by sex, and proportion of output contributed by the agricultural and service sectors.

Most of the equations of the model were estimated using Ordinary Least Squares. Occasionally, however, the Cochrane-Orcutt procedure was employed to correct autocorrelation problems Where the estimation involved the Cochrane-Orcutt procedure, the simulation equation utilized the estimated error process.

Three scenarios about women's role and status that are deemed important to Philippine socio-economic and demographic development are simulated. These include: (a) improvement the education status of women, (b) delaying marriage, and (c) increase in the labour force participation of women. High education status is a feature of Philippine development. This is not only true for men but more so for women. Women surpassed men in education attainment in the

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[3] The labour force participation of men are considered exogenous because they do not vary much.

[4] It should be noted that the simultaneity between labour force participation, education and fertility calls for simultaneous estimation systems. Two-stage least squares was attempted, but the results appears to be "inferior" as many of the coefficients were not significant and R-square are generally smaller. Importance is given to significant coefficients because long-term simulations requires more reliable estimates of coefficients.

middle of the 1970s. On the other hand, if the economy continues to grow and wages rise, women may find delaying marriage an attractive option given their high education status. Finally, another curious characteristic of Philippine development is that despite the high education status labour force participation rate of women during the post-war history is only one-half that of men. There is, therefore, much room for increasing labour force participation of women. These constitute the likely prospects for women in the future. Simulations are done for each of these three prospects.

Simulation results are summarized in tables 13 to 20. In summary, the results show that improving the education status of women increases per capita income, reduces fertility rate and significantly advances the attainment of replacement fertility, improves the wage rate of women, reduces the proportion of women who are unpaid family workers and increases their labour force participation rates. Delaying marriage, on the other hand, mildly increases per capita income, reduces fertility rate and improves the education status of women in younger age-groups. However, this also increases the labour force participation of women which brings forth a decline in their wage rate and increases the proportion of women who are unpaid family workers. Finally, increasing the labour force participation rate of women yields a slightly higher income per capita, a modest reduction in fertility rates and an increase in the proportion of women who are unpaid family workers. But the telling impact is that this will bring about drastic reductions in the wage rate of women.

Thus, of the three scenarios, only increasing the education status of women do not have unintended negative effects. The other two will result in negative labour market impact for women workers. Therefore, improving the status of women via the latter two routes will need to be accompanied by measures that increases labour absorption capacity of the economy. Without these measures, improving women status via these avenues will indeed have positive social impact such as improvement in per capita incomes and reduction of fertility rate but the cost will be borne personally by women in terms of lower wages and more of them becoming unpaid family workers. A corollary implication that can be drawn from these results is that policies that increases the demand for labour per unit output will be welfare improving for women (and society as a whole) as compared to those that affect supply without accompanying increases in demand for labour.

These results highlight the importance of system analysis in the study of the implications of the changing role and status of women. Partial analyses may likely overlook the undesirable effects of improving the status of women via certain means such as increasing labour force participation or delaying marriage alone without considering their negative wage effects that can led to unintended deterioration of women's status.

Table 13. Per capita GNP (1985 Pesos)

	Base	*Increase in education*		*Delaying marriage*		*Increase in labour participation*	
		Value	*per cent diff*	*Value*	*per cent diff*	*Value*	*per cent diff*
1990	13 270	13 270	0.00	13 270	0.00	13 270	0.00
1995	14 561	14 583	0.15	14 569	0.05	14 600	0.27
2000	16 150	16 303	0.95	16 209	0.37	16 248	0.61
2005	17 880	18 267	2.16	18 054	0.97	18 039	0.89
2010	19 959	20 638	3.40	20 319	1.80	20 179	1.10
2015	22 479	23 488	4.49	23 109	2.80	22 765	1.27

Table 14. Total fertility rate

	Base	*Increase in education*		*Delaying marriage*		*Increase in labour participation*	
		Value	*per cent diff*	*Value*	*per cent diff*	*Value*	*per cent diff*
1990	4.01	4.01	0.00	4.01	0.00	4.01	0.00
1995	3.51	3.28	-6.55	3.42	-2.56	3.44	-1.99
2000	3.07	2.70	-12.05	2.89	-5.86	3.01	-1.95
2005	2.65	2.25	-15.09	2.39	-9.81	2.60	-1.89
2010	2.25	1.90	-15.56	1.95	-13.33	2.21	-1.78
2015	1.89	1.62	-14.29	1.57	-16.93	1.86	-1.59

Table 15. Average real daily wage rate for women (1978 Pesos)

	Base	*Increase in education*		*Delaying marriage*		*Increase in labour participation*	
		Value	*per cent diff*	*Value*	*per cent diff*	*Value*	*per cent diff*
1990	10.26	10.26	0.00	10.26	0.00	10.26	0.00
1995	9.31	10.12	8.70	9.17	-1.50	7.11	-23.63
2000	10.54	11.97	13.57	10.20	-3.23	7.81	-25.90
2005	11.82	13.55	14.64	11.38	-3.72	8.69	-26.48
2010	12.60	14.61	15.95	12.29	-2.46	9.28	-26.35
2015	14.40	16.95	17.71	14.46	0.42	10.60	-26.39

Table 16. Ratio of real daily wage rate (male/female)

	Base	*Increase in education*		*Delaying marriage*		*Increase in labour participation*	
		Value	*per cent diff*	*Value*	*per cent diff*	*Value*	*per cent diff*
1990	1.24	1.24	0.00	1.24	0.00	1.24	0.00
1995	1.55	1.44	-7.10	1.57	1.29	2.08	34.19
2000	1.23	1.09	-11.38	1.27	3.25	1.70	38.21
2005	1.01	0.89	-11.88	1.06	4.95	1.41	39.60
2010	0.90	0.78	-13.33	0.92	2.22	1.25	38.89
2015	0.74	0.63	-14.86	0.74	0.00	1.03	39.19

Table 17. Proportion of unpaid family worker (female)

	Base	*Increase in education*		*Delaying marriage*		*Increase in labour participation*	
		Value	*per cent diff*	*Value*	*per cent diff*	*Value*	*per cent diff*
1990	22.56	22.56	0.00	22.56	0.00	22.56	0.00
1995	20.75	17.58	-15.28	20.75	0.00	20.78	0.14
2000	17.43	12.99	-25.47	17.42	-0.06	17.51	0.46
2005	13.59	9.35	-31.20	13.54	-0.37	13.70	0.81
2010	9.88	6.63	-32.89	9.76	-1.21	10.00	1.21
2015	6.69	4.64	-30.64	6.49	-2.99	6.79	1.49

Table 18. Ratio of unpaid family workers (female/male)

	Base	*Increase in education*		*Delaying marriage*		*Increase in labour participation*	
		Value	*per cent diff*	*Value*	*per cent diff*	*Value*	*per cent diff*
1990	2.094	2.094	0.00	2.094	0.00	2.094	0.00
1995	2.077	1.761	-15.20	2.078	0.04	2.086	0.44
2000	2.075	1.555	-25.06	2.078	0.17	2.095	0.96
2005	2.030	1.416	-30.25	2.034	0.20	2.060	1.46
2010	1.931	1.325	-31.39	1.930	-0.04	1.969	2.01
2015	1.771	1.270	-28.24	1.754	-0.91	1.816	2.54

Table 19. Female labour force participation rate

		Base	*Increase in education*		*Delaying marriage*		*Increase in labour participation*	
			Value	*per cent diff*	*Value*	*per cent diff*	*Value*	*per cent diff*
(a)	10-24							
	1990	0.3305	0.3305	0.00	0.3305	0.00	–	
	1995	0.3313	0.3402	2.69	0.3323	0.30	–	
	2000	0.3411	0.3532	3.55	0.3426	0.44	–	
	2005	0.3689	0.3787	2.66	0.3704	0.41	–	
	2010	0.3909	0.3941	0.82	0.3920	0.28	–	
	2015	0.3947	0.3879	-1.72	0.3936	-0.28	–	
(b)	25-44							
	1990	0.5262	0.5262	0.00	0.5262	0.00	–	
	1995	0.5463	0.5651	3.44	0.5519	1.03	–	
	2000	0.5722	0.6019	5.19	0.5832	1.92	–	
	2005	0.6122	0.6422	4.90	0.6267	2.37	–	
	2010	0.6479	0.6710	3.57	0.6641	2.50	–	
	2015	0.6704	0.6810	1.58	0.6851	2.19	–	
(c)	45-64							
	1990	0.5128	0.5128	0.00	0.5128	0.00	–	
	1995	0.4671	0.4756	1.82	0.4677	0.13	–	
	2000	0.4710	0.4840	2.76	0.4711	0.02	–	
	2005	0.4908	0.5011	2.10	0.4890	-0.37	–	
	2010	0.5085	0.5109	0.47	0.5037	-0.94	–	
	2015	0.5179	0.5084	-1.83	0.5077	-1.97	–	
(d)	65 and above							
	1990	0.2639	0.2639	0.00	0.2639	0.00	–	
	1995	0.2319	0.2358	1.68	0.2322	0.13	–	
	2000	0.2337	0.2397	2.57	0.2336	-0.04	–	
	2005	0.2426	0.2476	2.06	0.2417	-0.37	–	
	2010	0.2505	0.2522	0.68	0.2483	-0.88	–	
	2015	0.2551	0.2518	-1.29	0.2507	-1.72	–	

Table 20. Education status of women (percentage)

	Base	*Increase in education*		*Delaying marriage*		*Increase in labour participation*	
		Value	*per cent diff*	*Value*	*per cent diff*	*Value*	*per cent diff*
(a) Proportion of women 25 years and over who are college graduates							
1990	16	–		16	0.00	16	0.00
1995	20	–		20	0.00	20	0.00
2000	25	–		25	0.00	25	0.00
2005	31	–		31	0.00	31	0.00
2010	37	–		37	0.00	37	0.00
2015	45	–		46	2.22	45	0.00
(b) Proportion of women15-24 years old who are high school graduates							
1990	22	–		22	0.00	22	0.00
1995	26	–		26	0.00	26	0.00
2000	30	–		31	3.33	30	0.00
2005	35	–		36	2.86	35	0.00
2010	41	–		43	4.88	41	0.00
2015	47	–		50	6.38	47	0.00

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POPULATION CHANGE, WOMEN'S ROLE AND STATUS, AND DEVELOPMENT IN THAILAND: EXECUTIVE SUMMARY*

Mathana Phananiramai

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* The paper is an executive summary of a study report of Thailand conducted during 1992-1994 under an ESCAP project on "Population Change, Women's Role and Status and Development" with financial support from the United Nations Population Fund.

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INTRODUCTION

This paper gives a brief account of a much longer report of a study on "Population Change, Women's Role and Status and Development" conducted by the author as a case study under an ESCAP project on the same topic. The case study consists of two major parts. The first part gives a rather qualtitative review of the situation and extant studies in the subject. The second part deals with an economic-demographic model aimed at identifying and measuring the various interlinkages beween population factors, development and women's role and status as well as providing future scenarios for planning purposes.

I. A REVIEW OF NATIONAL SITUATION

A. ECONOMIC AND DEMOGRAPHIC CHANGES

During the past two decades, Thailand has undergone tremendous social and economic changes. Thai economy was dominated by agricultural sector until about 1960. The launch of the first five years social and Economic Plan in 1961 was her first step toward industrialization. Like most developing countries, the first policy adopted toward industrialization was import substitution which aimed at reducing imports and increasing employment opportunity within the country. Around 1972, the policy was shifted from import substitution to export promotion. When the export promotion policy was first adopted, Thailand was still a country abandon of cheap labour, hence several export oriented industries which were labour intensive such as textiles and garment, food processing, electronic goods and gem cutting expanded rapidly. These have caused tremendous structural change in Thailand. The share in agricultural product reduced from 31.5 per cent in 1975 to 12.9 per cent in 1992. During this period, the nation's economic growth was quite impressive, with an average rate around 7.5 per cent per year.

During the period of changing economic structure, population growth rate had been brought under control, from an annual growth rate of over 3 per cent in early 1970 to a rate around 1.4 per cent in 1990. This is the results of a decline in both fertility and mortality rates. Total fertility rate dropped from around 6.3 in 1965 to near replacement level in 1990. Mortality rate also declined rapidly as reflected by an increase in life expectancy at birth from 58 and 64 for male and female, respectively, in 1975 to 68 and 72 years in 1991. Rapid fertility and mortality decline generated considerable change in the age-sex structure of population. As a result, the proportion of children under 15 years has declined and the proportion of population aged over 60 has increased rapidly.

Demographic and economic changes also influence patterns of family formation and family life, causing changes in family composition and structure. An average household size in 1980 was 5.3, and the percentage distribution of intact, single-headed and one-person households, respectively was 78.6, 17.8 and 3.6.[1] Based on the data from the Labour Force Survey, an average household size in 1990 was 4.02, and the corresponding percentage distribution of households by type was 74, 20.2 and 5.8 respectively.

B. WOMEN'S ECONOMIC ROLES AND STATUS

Amid the process of rapid demographic and economic change, women's roles and status as member of society and family must change along. Women in Thailand have always been participating actively in economic activities. However, over time, the nature of economic activities has changed significantly. In the old days, most women worked as unpaid family worker or self-employed, hence economic and household works can be achieved simultaneously within the household. Therefore they can shift back and forth between market and non-market activities easily. This is evident by the fact that labour force participation rate of women fluctuates significantly over different seasons of the year and responses sensitively to economic fluctuations. With economic development, production are shifted away from households, therefore work place and household become separated. Women's work status gradually changes from being unpaid or self-employed worker to employee. According to the Labour Force Surveys, the proportion of economically active women who work as employees increased from 17.0 per cent in 1980 to 25.6 per cent in 1990.

Considering the occupation of women, in 1980, the top three occupations most common among female workers, by descending order, were agricultural workers, sales workers and craftsmen or workers in production line. For male workers, the same three occupations were most common, but the order were agricultural, craftsmen or production line workers and sales workers. In 1990, however, the proportion of workers who worked as craftsmen or production line workers came second, next only to the agricultural and mining workers for both sexes.

White collar workers (professional and technical workers, administrative, executive and managerial personnel and clerks) constituted 5.5 per cent of total employment in 1980, and increased to approximately 7.6 per cent in 1990. Within this occupational group, the proportional of male workers in administrative, executive and managerial personnel was 4 times higher than female workers (2.0

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[1] Calculated from table 2.8. Type of households: 1980-2005, in "Households and their characteristics" by Mason, Phananiramai and Poapongsakorn, in *The Economic Impact of Demographic Change in Thailand, 1980-2015* edited by Campbell, Mason and Pernia, published by East-West Centre and Asian Development Bank, 1993.

per cent versus 0.5 per cent) in 1980. In 1990, although the proportion of female white collar workers increased, the proportion of male workers in administrative, executive and managerial position was approximately 3.5 times higher than that of female workers (2.2 per cent versus 0.6 per cent). Hence women are under-represented in these high level positions. It also implies that occupational choice is more limited for women.

Female employees consistently earn less than male employees, however, the wage gap seems to be narrowing over time. In 1980, on the average, women's earning was 35 per cent lower than men's; but in 1989, female employees earned only 26 per cent lower. A decomposition of the male-female wage differentials indicated that only less than half of the differences could be explained by differences in their educational attainment and other characteristics that influenced a person's productivity. The unexplained differences could be attributed to discrimination against women in terms of pay and employment (Phananiramai, 1993).

Regarding legal aspect of women's employment, there are only few regulations which prevent women from being employed in certain positions. The restrictions are mainly for protective reason. However, practice tends to deviate from law. Some positions are filled only by men despite the fact that no regulation prohibits employing woman in those positions. For example, governors at the provincial level used to be men only until recently when one woman broke the tradition. Pay discrimination is illegal, but it is still practiced widely.

C. WOMEN'S SOCIAL ROLES AND STATUS

The tendencies that married daughter brings in son-in-law and the inheritance of land and house by daughter made Thai women the centre of their families. Thus women tend to have more commitment and responsibilities in their families. Thai daughters are expected and more willing to contribute in any way to support their parents because a large proportion of whatever remains after the parents pass away will be theirs through inheritance. The daughter who takes care of her elderly parents usually inherits the house later. As a wife and a mother, she is expected to share the hardship of economic burden and to do most of household work, especially caring for children and elders.

Despite their deeper commitment to the family, they are seldom recognized as household head. This is because religious beliefs and cultural values still place men in a more privileged position than women. Such bias demonstrates itself in many ways. For example, women are expected to be more strictly observed their conducts than men do. Any misconducts committed by men seem to be better tolerated by the society. An obvious example of this is faithfulness within marriage. While woman is expected to be faithful to her husband, it is not so seriously expected from men.

Regarding women's legal status, it started to improve after the 1932 revolution when Absolute Monarchy was changed to Parliamentary Democracy. Women have been given the rights to run in the national election and the right to vote in the election. Nevertheless, in reality, the social value and cultural bias prevail, hence their actual participation in politics has been very limited. Even now, the number of female members of the Parliament (MP) and the number of female MPs who hold administrative positions in the government are far below the proportion of female population. In local Thai politics, women have been given the right to run for the office of local administration since 1982. However, the number of women in local administration remained much smaller than men.

Despite the fact that there are explicit statements in the constitution which guaranteed equality between men and women, there are still sex discrimination in some legal aspects. For example, married women are obliged to use the husbands' surnames. The children of Thai woman and alien father will not automatically acquire Thai nationality, but the children of Thai men married to alien women will. Finally, according to the Prostitution Act in 1960, every party involved in prostitution is subject to penalties except the customer. At present, there is an effort to change the law so that penalty will be extended to the customer as well. (Pruekpongsawalee, Malee, 1986)

D. EMERGING ISSUES RELATED TO WOMEN'S ROLES AND STATUS

Two related issues on women's roles, status and welfare have been emerging from recent economic and demographic changes. Firstly, changing women's work status from unpaid family worker to employee in establishments separated from family has many implications on women's roles and status. Under new economic environment, if women have to participate in the labour market, they may not be able to take full responsibility on household activities as in the past. Therefore, if family members are not aware of these changing circumstances and adjust accordingly, several social problems including child abuse, family violence, unwanted pregnancies and so forth, may arise.

Another implication is that when most women worked in family enterprises, men and women did not compete with each other, rather they tended to work complementarily and women usually played a subordinate role. Profits gained from family enterprise will be shared among family members. Problem specific to women arises only when unfair resource allocation is practiced within household. However, when work place is separated from household, men and women may directly compete with each other in economic arena. But neither women are well prepared for this competition nor condition allows a fair competition for women.

If women are to benefit from economic and demographic changes, it is necessary for them to be well prepared for new economic opportunities and society must also create a fair competitive environment for them. A prior condition would be that women must be given equal opportunity for education. Education will not only prepare women for modern economic activities, but it will also affect other aspects in women's life which indirectly raise their status. Education will also change their bargaining power, hence improves their status in the families. At the same time, education for both men and women should accelerate the process of reducing bias against women, in order to establish a better and more dignified society for all.

Secondly, an increasing prevalence of women being heads of single-headed households will affect not only the roles, status and their welfare, but also the welfare of children who tend to live with mother in the case of divorce. Female single-headed households are likely to be worse off than other households because as household main income earners, women are in a disadvantaged position in the labour market. Moreover, because women have to support the family through income-generating activities, they will face tighter time constraints on non-market activities. Both should have adverse effects on the women's and their children's welfare. Hence, the problem specific to the welfare of women and children which used to be a problem of unfair resource allocation within family has merely been transformed into problem of income distribution among households. This is evident by the fact that female single-headed households living with children face higher risks of being poor (Bauer, 1991).

Finally, an increasing incidence of elderly women lived alone will also have negative impact on the welfare of women. In the past, women participate in the labour force and start their families quite early, hence they can afford to retire early. Their old age support is somewhat secured through the family system. However, with changing family structure coupled with postponed marriage and lower fertility, the traditional security system becomes weakening. While there is yet no other social security system to substitute the old one, these women may have to rely on self supporting by prolonging their participation in the labour market. But such option is not always available to them. Thus poverty incidence is also found to be especially high among elderly women living alone (Bauer, 1991).

II. THE RELATIONSHIPS BETWEEN DEMOGRAPHIC CHANGE, DEVELOPMENT AND THE ROLES AND STATUS OF WOMEN: A MODEL

A. MODEL SPECIFICATION

The interrelationships among demographic outcomes, women's roles and status and economic outcomes are complicated. They can affect each other directly or indirectly through intermediate variables on demographic and socioeconomic processes. In order to address these quantitative interrelationships, an economic-demographic model is built and simulated for policy implications. The model is consisted of two sub-models:– a social and demographic sub-model and an economic sub-model. The social and demographic sub-model is designed to generate social and demographic outcomes, namely the number of population by age, sex and educational attainment, the number of household by type and labour supply by their educational attainment. These outcomes are generated by the processes represented by the following rates:– school attendance rate, marriage and fertility rates, living arrangement and labour force participation rates. An economic sub-model is designed to generate economic outcomes, namely total output and output by sector. Output is determined from the supply side and relative growths by sector are treated as policy variables. The two sub-models are linked by the fact that all the rates are functions of social, demographic and economic outcomes. Conversely, total output generated in the economic sub-model is determined by different types of labour supply generated in the social and demographic model.

The social and demographic sub-model consists of five dependent variables and four sets of independent variables. Dependent variables are school attendance rate, marriage and fertility rates, labour force participation rates, and the probability of being in certain household status and household type. The first set of independent variables consists of a person's own demographic and socioeconomic characteristics, namely age, sex and educational attainment. The second set consists of characteristics at the household level namely, work status and industry type engaged by the household head; and the average education of adult members in the household. The third set are some characteristics of the community, namely, whether a person resides in municipal or non-municipal areas and per-capita income in the residential province. The final set is life expectancy at birth which is used to generate age-specific mortality rates. The first three sets of independent variables are lag outcomes generated in the model. The last set is estimated exogenously from past trend.

The economic sub-model consists of three blocks:– an output block, a wage block and an interactive block that links the two sub-models. An output block consisted of three equations:– a Cobb-Douglas production function, an investment

function and an equation to determine the rate of growth in agricultural sector, which is a function of the rate of growth in total output and two exogenous relative growth rates by sector. A wage block is designed to compute relative real wage rate of labour classified by sex and educational attainment. It consists of an imputed wage equation for female labour with primary education and a set of 6 equations to calculate the ratio between real and imputed wage for each labour type. The third block consists of 4 equations. The first three equations are to calculate the rate of change in the proportion of population lived in urban areas and the proportion of labour by work status (self-employed or unpaid family workers and economically inactive). These equations are assumed to be functions of changes in the share of output in manufacturing and service sectors. The last one is to calculate per capita income from total output and the size of population.

B. SIMULATION ASSUMPTIONS

Six simulation runs are experimented in this study, i.e., one basic run and five policy runs. Assumptions made in these simulations are as follows:

The basic run: Life expectancy at birth, technological progress (represented by an upward shift of the production function) and relative output growths by sector are assumed to follow past trend.

Policy run A, the low-growth scenario: The same set of assumptions used in the basic run is used here, except that the production function does not shift upward. This is equivalent to assuming that there is no technological progress over time.

Policy run B, the controlled structural change scenario: In this simulation, in stead of extrapolating structural changes from the relative growth rates by sector experienced in the past, an economic policy that emphasizes more in the agricultural and service sectors is assumed. The assumptions imply that the agricultural sector will decline less rapidly, the manufacturing sector will increase more slowly and the service sector will increase more rapidly than the rates assumed in the basic run.

Policy run C, an educational acceleration scenario. In this simulation, the school attendance equations estimated from past data are assumed to shift upward over time. This assumption will reflect the government policy to raise school enrollments at all levels, especially at the lower-secondary education.

Policy run D, a scenario that assumes educational acceleration and reducing male-female educational gap. In this simulation, in addition to assuming a more rapidly increase in the school attendance rate as in policy run C, it is also assumed that female's school attendance rate moves closer to that of male's and closing the gap by the year 2020.

Policy run E, a less rapidly declining fertility scenario. In this simulation, the equation used to estimate marital fertility rate is modified by reducing the estimated coefficients showing the effects of social and economic outcomes on fertility by half. The reason behind this assumption is that as fertility rate is approaching the replacement level, room for further fertility decline should be more limited. Therefore, future effects of social and economic outcomes on fertility should be less sensitive than past experience.

C. SIMULATION RESULTS

The model and simulation results have shown that demographic and economic outcomes and women's roles and status are inter-related, but the quantitative significance varies from one issue to another. Results from the basic run show that if people continue to behave in response to social and economic changes as in the past, both fertility and marriage rates will decline in the future. Hence the rate of population growth will decline further, and the population will age rapidly in the near future. School attendance rate at lower-secondary education and college level will be more sensitive to social and economic outcomes, but the rate at upper-secondary education remains quite constant throughout the simulation period. With these attendance rates, the number of students will decline from approximately 9.9 millions in 1990 to 7.5 million in 2020. The decline in the number of students is mainly due to a decline in the enrollments at primary education which dominates an increase in the enrollments at lower-secondary and college levels.

Female labour force participation rate will decline significantly over time whereas the size of population is simulated to remain relative stable at around 64 million after 2015. Thus, the labour supply is simulated to decline gradually since 2010. Although the proportion of educated workers increases over time, labour will continue to be dominated by unskilled workers with only primary education until 2015. Labour measured in standard unit (labour adjusted for education), still has a positive but declining growth rate throughout the simulation period. A declining growth rate in the standard labour input will cause the economy to grow less rapidly, as the rate of output growth is estimated to decline continuously from 8.7 per cent per year during 1990-1995 to 4.3 per cent during 2015-2020. But per capita income will continue to rise from 11,579 Baht per year (in 1972 prices) in 1990 to 58,832 Baht in 2020. As the rate of growth in total output decline, the rate of growth in per capita income will also decline, but less rapidly.

Household size is predicted to decrease continuously. Therefore, the number of household will continue to rise despite the fact that population size becomes quite stable after 2015. But the composition of household by type is simulated to change over time. The share of intact households which used to be more than 70 per cent in 1990 will decline to 65 per cent in 2020, while the share of all other

types of household increases. In particular, the simulation results show that the number of female single-headed and one-person households will increase rapidly, from 2.07 and 0.52 million, respectively, in 1990 to 4.7 and 1.5 million in 2020. (See table 1).

The implications of economic performance on demographic changes and women's roles and status could be drawn from policy runs A and B. A lower economic growth rate will significantly slow down the pace of demographic and social changes, causing both fertility and marriage rates to be approximately 10 years lag behind those in the basic run. As a result, at the end of the simulation period, there will be more population, more students at the primary education and a higher female labour force participation rate. But output growth rate and per capita income will be lower. A lower economic growth seems to favor women with low education, but disfavor women with higher education, since the male-female real wage ratio for persons with secondary or college education will decline less rapidly than that found in the basic run, but the male-female real wage ratio for persons with primary education will decline more rapidly. Finally, a lower economic growth assumption will only marginally lower the rate of increase in the proportions of women being the head of single-headed household and those who live alone.

Under different structural changes, the proportion of workers by their work status will be different from that generated in the basic run, and theoretically this should affect their demographic and social behaviors. In particular, the percentage of women working as self-employed or unpaid family workers will be higher than the results generated from the basic run. However, with these magnitudes of differences in economic structural changes, the model generates no different results in demographic outcomes from the basic run during the simulation period. Policies emphasizing the service sector (policy run B) will, however, increase real wage gap between men and women with higher education. Simulation results from the controlled structural changes also imply that if output is really determined from the supply side, allocating more resources into the agricultural sector will not have any foreseeable negative effect on demographic and social development in Thailand. But it will help to improve the relative status of women with low education. Moreover, since workers in agricultural sector are in general the poorest group in the society, promoting the agricultural sector should also help to improve the income distribution in Thailand.

The implications of educational policy could be seen from policy run C. Increasing education has many implications on demographic and economic outcomes as expected. It will result in more rapidly fertility decline and longer delay in marriage. Labour supply will be slightly lower because of lower labour force participation rates for both men and women, but labour in standard unit will be higher than that generated in the basic run. Higher quality of labour leads to a higher growth rate in GDP and in per capita income. Higher education also

Table 1. Comparison of the result from basic run and policy run A-E

	1990 Base year	2020 Basic run	2020 Policy run A	B	C	D	E
Demographic and socio-economic variables							
SMAM (*)	22.58	26.17	24.65	26.14	26.53	26.63	26.16
TFR (*)	2.74	1.70	2.17	1.70	1.59	1.59	2.12
Total population	54.55	64.22	66.31	64.25	63.89	63.89	64.47
Young dependency ratio	46.06	20.41	24.29	20.47	19.86	19.8	21.87
Old dependency ratio	11.67	27.27	27.07	27.26	27.31	27.31	27.46
Number of students (in million)	9.95	7.55	7.92	7.53	7.91	8.15	7.78
Labour supply (in million)	30.94	35.73	39.27	35.84	35.26	36.05	35.50
Labour in standard unit (in million)	48.67	87.99	87.99	88.00	94.07	94.76	87.32
Number of household (in million)	13.58	24.86	24.94	24.83	24.75	24.73	24.81
Share of intact household (%)	74.01	65.00	65.08	65.16	64.32	64.29	64.93
Average household size (in person)	4.00	2.58	2.65	2.58	2.57	2.58	2.59
GDP (in billion Baht at 1972 prices)	632	3 778	2 138	3 778	3 894	3 906	3 765
Per capita income (in Baht at 1972 prices)	11 579	58 832	32 242	58 803	60 942	61 155	58 406
Percentage share – Agriculture	14.36	5.95	7.89	8.39	5.86	5.85	5.96
– Manufacturing	35.85	44.37	41.94	38.35	44.49	44.50	44.35
– Services	49.79	49.68	50.17	53.27	49.65	49.64	49.69
Proxies for women's roles and status							
Male/female school attendant ratio (*)							
Primary	1.14	1.17	1.15	1.17	1.14	1.00	1.17
Lower secondary	1.15	1.07	1.10	1.07	1.02	1.00	1.07
Upper secondary	1.06	1.06	1.06	1.06	1.08	1.00	1.06
Tertiary	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Female labour force participation rate	80.40	63.64	71.98	63.90	63.00	63.03	63.58
Proportion of self-employed or unpaid family workers	72.60	68.11	69.58	71.86	67.88	68.04	68.13
Male/female real wage ratio							
Primary	1.39	1.28	1.22	0.94	1.28	1.28	1.28
Secondary	1.24	1.20	1.22	1.37	1.20	1.20	1.20
Tertiary	1.47	1.46	1.47	2.03	1.46	1.45	1.46
Total	1.42	1.37	1.39	1.60	1.35	1.32	13.7
Percentage of women being household head	8.77	14.53	14.21	14.46	14.66	14.67	14.51
Percentage of women live alone	2.33	4.47	4.36	4.43	4.58	4.58	4.45

Note: (*) Refer to periods 1990-1995 and 2015-2020.

leads to a slightly higher incidence of female single headed and one-person households.

Policy run D implies that educational policy alone is not sufficient to close the male-female wage gap if different pay structures between sexes remain. Additional measures to reduce discrimination against women in the labour market must be supplemented.

Policy run E shows that a less rapid fertility decline will result in a slightly younger population with more persons in 2020. Most of these additional population will be in school during the simulation period, causing an increase in the number of students by about 3 per cent (or about 0.23 million) more than the basic run in 2020. But these additional population will not yet have much effects on the supply of labour during the simulation period. Apart from the effect on the number of student, a higher fertility assumption will only marginally affect household structure, per capita income and on male-female relative wage rate.

Finally, both the number and the proportion of women being household head and those who live alone will increase rapidly over time. Both the number and the proportion mainly depend on the age-sex structure of population. Hence, during the simulation period, they are quite robust to different assumptions used in different policy runs.

III. RECOMMENDATIONS FOR THE FORMULATION OF POPULATION PLANS AND POLICIES

Results from the simulations lead to the following policy implications. Firstly, at this stage of demographic transition, population policy must be made carefully. Further fertility decline beyond the replacement level may not be desirable. This is because at currently low fertility level and foreseeable rate of change, a high rate of population growth is no longer a threat to social and economic development in short and medium runs (within 30 years). In the long run, a slightly increasing or non-declining population growth rate will be a constant source of labour supply which will help to prevent growth in GDP from falling too rapidly. Even with technological progress, the dynamism of a population with reasonable proportion of children, teenagers and adults will help to maintain some growth in total output more easily. Moreover, due to a weakening family tie, it is necessary to develop other old age security system to substitute the old one. But the burden of financing any old age security system will be extremely high or even infeasible if population is aging too rapidly.

Secondly, due to anticipated economic and demographic changes, the proportion of women worked in paid employment will increase. Likewise, the proportion of women who are the heads of single-headed household and those

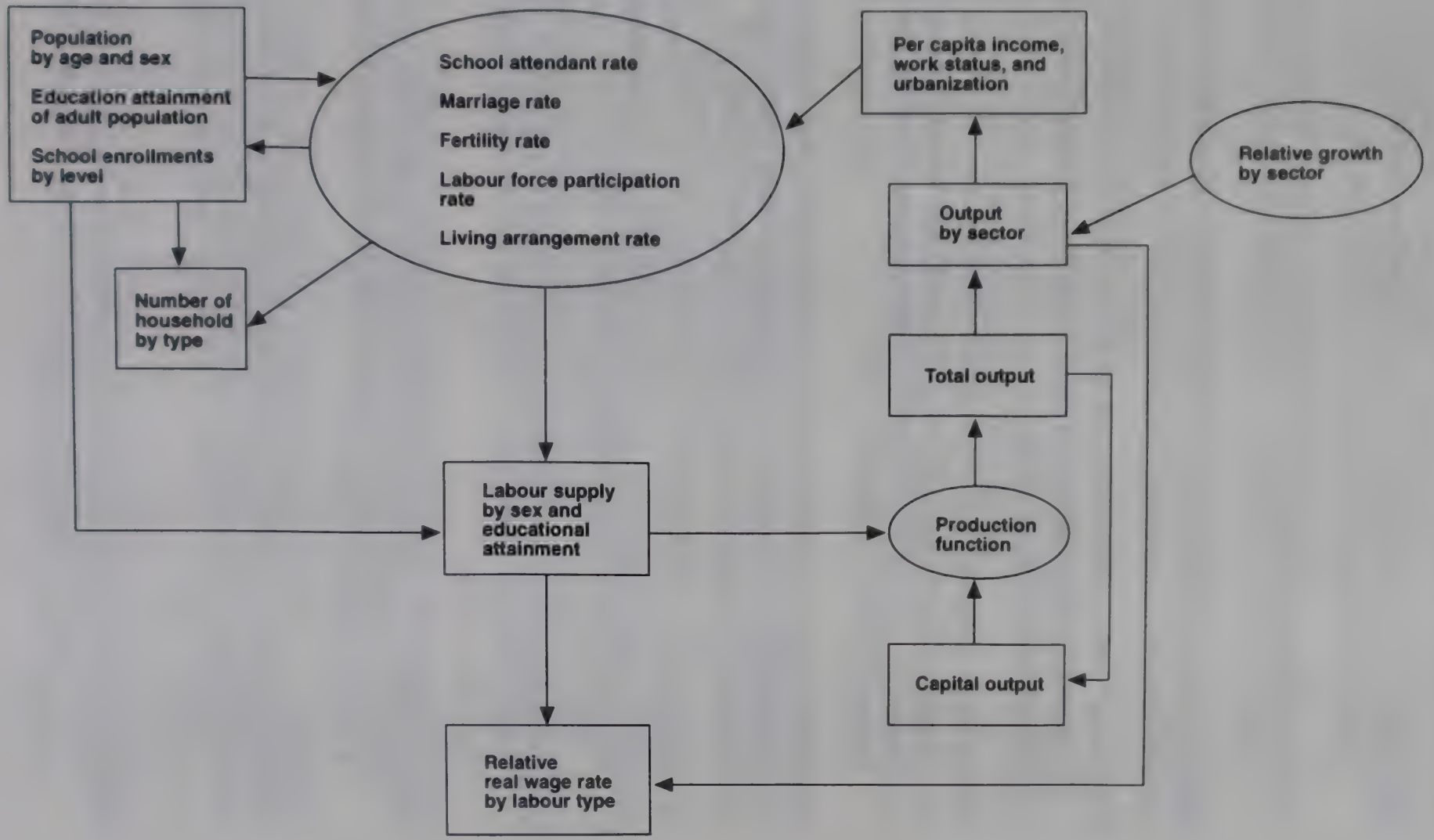
who live by themselves will also increase. This means that women have to compete directly with men for work and promotion. At the same time more women will be left alone to shoulder the economic burden, not only for themselves, but also for members in their households. Therefore, an equal opportunity for women to acquire knowledge and employment will be more important than before. If the principal of equal opportunity is not observed strictly, women's status and welfare may deteriorate because the seemingly more economic independence does not really provide them with more alternatives. Women who are subject to being mistreated within family may be even more mistreated in the labour market.

Thirdly, since the nature of work has changed, women who have to participate in the labour market may be unable to fulfil household duties expected of them as in the past. It is important that family members must be aware of these changing circumstances and adjust accordingly. For example, both parents should participate more equally in caring for children and in doing other household duties. Campaigns should be made to increase awareness of changing circumstances and to change social value so that Thai men are more willing to share household responsibilities. Failure to this kind of role adjustment may weaken the family institution and lead to other social problems.

Fourthly, due to an aging population, the number of elders, especially elderly women is bound to increase rapidly. Old age security system to cover these women is urgently needed. Presently, the government is considering establishing an old age security scheme within the Social Insurance System. But such system will cover only employees in establishments with more than 10 employees. Though this is a good start, but the covered employees are not the only group who need old age protection. Therefore, old age security system must be extended to cover elderly persons in rural areas and those who are employed in the informal sector. Probably, this is the group of people who are more in need for old age protection than employees in the formal sector.

Finally, an economic policy that neglects agricultural sector will hurt the relative status of women in low social class, not to mention that it will also increase income inequality. Allocation of more resources to the agricultural sector does not have any undesirable effect on social and demographic development, but will have all the positive effects, opposite to those mentioned above. Therefore, it is worthwhile that the government should reconsider their economic development strategy which tends to bias toward the non-agricultural sector and results in a widening income gap.

Diagram of the simulation process



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